THE USE OF LABANOTATION FOR SYNCHRONIZED SWIMMING

by

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A Thesis Submitted to
the Faculty of the Graduate School at
The Woman's College of the University of North Carolina
in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Physical Education

Greensboro
June, 1963

Approved by

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ACKNOWLEDGEMENTS

The writer wishes to extend sincere appreciation to Dr. Rosemary McGee for her patient guidance, tireless assistance, and constant inspiration in the completion of this thesis and during the writer's year of graduate study at The Woman's College.

Acknowledgement is extended to Miss Virginia Moomaw and the Graduate Assistants in Modern Dance for their valuable instruction and sincere interest in the writer's study of Labanotation. Gratitude is expressed to Miss Dorothy Davis for her helpful suggestions.

The writer acknowledges the five members of "On Your Toes" from the 1963 Dolphin-Seal Pageant for performing the natatography.

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CHAPTER I

INTRODUCTION

Evidence of mankind's heritage would have been meager were it not for the signs and symbols used in recording events. Through the years these systems of notation have contributed strength and energy to science and the arts. It was through the notation of mathematics that the foundations of modern physics and engineering were laid (2). Organic chemistry has developed from the notation of Dalton's atomic theory (8). Through music notation the creations of the great masters from nearly every period are available. The epics of Homer and the great works of the other ancient poets have been preserved through written phonetic signs (7). Galleries and museums contain both originals and reproductions of famous paintings (33).

Although the "tool" of notation has existed for centuries in these fields (24), there has been a problem in recording the movements of the human body (11). This problem perhaps has had the greatest effect on the art of dance. An occasional sketch showing one position from a composition (33), inaccurate word pictures, and unsuccessful notation systems have all been reasons for this loss to posterity.

According to Gentry, "the struggle for literacy in dance..." (20:81) became obvious in the fifteenth century; nine centuries after music notation. Many systems have been devised since that time, but have failed or become obsolete one after another. Some were too complicated. Others demanded artistic ability. The most prevalent weakness in these systems

was the limitation in recording only the current dances, because no allowance was made for the development of new techniques (20). Hutchinson (5) divided the problems of any movement notation system into four categories:

1. The recording of complicated movement accurately.
2. The recording of it legibly.
3. The recording of it economically.
4. The keeping up with the continual changes in movement patterns.

In differentiating between dance notation and movement notation, Noa and Wachman explained that

> . . . the term 'dance' indicates, in every period, a certain range of movements expressing the choice of a composer and a dancer; and fulfilling the demands of a particular society in a certain epoch, . . . while the term 'movement' includes in its meaning all the possibilities of movement of the human body in their various manifestations. . . . (4:vii)

According to Hutchinson (24), notation is not only a method of recording movement, but it can also be used as a teaching aid in the remembering, understanding, and analyzing of movement. In later studies of composition and choreography, it can prove invaluable. Laban (27) pointed out that although the choreographer must be concerned with notation, the purpose of the invention of movement notation is to help the individual to attain a high standard of performing.

Gentry suggested that dance notation be placed in education.

> Notation is accurate, efficient, permanent, and scientific. It requires a little brainwork, patience, time, and a degree of effort. It also requires enough imagination to see at least some of the value of its usefulness now and in the future. First and last, it requires acceptance to a new idea (20:135).

An exact knowledge of the signs indicating the flow of movement in the body is necessary to read and write notation (7). In order to be intelligent and practical, a notation system should be able to describe all the potential movements in a specific activity as well as the characteristic individuality in appearance (4). To become a proficient notator one must be orderly and neat with a quick eye, analytical mind, and a good rhythmic sense (20). It appears to the writer that all physical education teachers, as well as choreographers, should possess these qualities. Laban (7) believed that much knowledge of movement is going to waste, not only in the field of education, but also in the fields of industry and therapy because so many bodily actions and exercises are not being perserved in notation form. According to his daughter, Juana de Laban, "not only dance movement, but motions for sport, industrial activity, and physical exercise could be simply recorded. . ." (26:123). Gentry agreed that

> There is no reason why the techniques of swimming, tennis, and other sports cannot be studied in notation, giving a student a graphic understanding of the technique prior to the actual physical engagement (20:135).

Morris also believed in a movement notation system.

> So that Remedial Exercises, swimming strokes, ordinary standing or sitting positions can all be written, besides any kind of dancing. . . (8:10).

Within the past forty years, synchronized swimming has become a popular activity. von Wietersheim stated that

> The endless possibilities for variety of movement and rhythm in this activity, the ever changing visual patterns formed by the swimmers, and the challenge of difficult stunt skills have appealed both to participant and spectator (66:1).

One of the most important values of synchronized swimming is the opportunity for creative expression, and for this reason Gundling (22) recognized it as an art and a sport. Spears in addressing the Association of Synchronized Swimming for College Women in 1957, stated that "the work for posterity is not finished, however, until the composition is recorded" (61:12). She further remarked that many aquatic groups and leaders are realizing the importance of recording synchronized swimming movements and are doing this successfully. Spears concluded her address with this quote from Fables For Our Times, ". . . but as Thurber said, 'Don't get it right, get it written!'" (61:12).

CHAPTER II

STATEMENT OF THE PROBLEM

It was the purpose of the writer to study Laban's scientific method of recording movement and to apply it to synchronized swimming. One complete routine from the 1963 Dolphin-Seal Pageant at The Woman's College of The University of North Carolina has been notated as well as some of the basic strokes and stunts utilized in synchronized swimming.

Definition of Terminology

The following definitions were accepted for the purpose of this study:

Synchronized swimming: - the "togetherness" of one or more swimmers with some form of accompaniment.

Aquaography,
Choreography,
Natagraphy,
Natatography,
Number,
Routine,
Water composition: - terms used to describe the arrangement of swimming strokes and stunts into formations to express a thought or idea.

Carnival,
Gala,
Pageant,
Water show: - a presentation of a grouping of routines expressing a central theme or idea through the use of different movements, tempos, moods, and designs.

Notation: - ". . . a set of signs capable of expressing or 'standing in place of' any event. . ." (4:viii).

CHAPTER III

REVIEW OF LITERATURE

In order to realize the importance of a common method of notating synchronized swimming movements, the author has investigated literature in four major areas. It was felt that an understanding of all past and present movement notation systems was important, as well as an investigation of the historical background of synchronized swimming and its notation systems.

Notation Systems of the Past

The history of dance notation can be generally divided into three phases:

1. Letter notation
2. Feuillet method
3. St. Léon method (26)

Exclusive of the hieroglyphs used by the Egyptians to represent dance movements, the earliest accounts of the first phase of movement notation were discovered to be from the fifteenth century. Two manuscripts were found in which vertical and horizontal strokes indicated direction or level and another symbol marked the beginning and end of the dance. One was written by a student; the other contained additional abbreviations of dance steps (26). Perhaps the latter was Margaret of Austria's dance book published in 1460, in which if the dance steps were to be repeated, the letters were repeated. In this system ". . . to go straight ahead, there's a little line (—), and if to one side or to the other, the line will

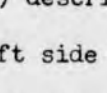
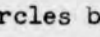
go up and down" (37:61). However, in order to read, write, or dance this notation, a performer had to know the steps which the letters represented.

The Orchesography was the first ". . . detailed and authentic . . ." recording of the dances from the fifteenth and sixteenth centuries that has come down through the ages (1). Published in 1588, the author, a French monk, known as Thoinot Arbeau (5) or Jehan Tabourot (1), made ". . . a visual attempt to describe dance . . ." (5:2). Juana de Laban (26), in quoting an article from Diderot's Encyclopédie, mentioned that Arbeau was the first one to describe the step to be executed with the note of the song. He used a five-line staff (38) with letter symbols placed under each note (5). Arbeau's works consisted of the ballroom dances of that period, which he considered an integral part of the education of a well-bred man (1). Although his technique was simple enough, Arbeau's dances were intelligible only with a lengthy explanation of the symbols (5).

In the seventeenth century Fabrito Carosa became well known for the notation of floor patterns in group movement. Using Arbeau's detailed dance step descriptions and with the shape of a rose, he showed how dancers joined partners, formed lines, and moved around one another in a circular formation (39).

Dance was not the only type of movement notated during the 1700's. Groups of horses were trained to perform various maneuvers, known as ballet, similar to that seen in the circus of today. One early horse ballet floor plan, contained very small diagrams of forty horses in six sections of different formations (39).

During the second historic phase a French Act of Parliament, in 1666, recognized the ballet master, Pierre Beauchamp, as the inventor of dance notation (5). Juana de Laban (26), however, credited Arbeau with the invention. But she added that it was Raoul Feuillet, with a refinement and improvement of Beauchamp's symbol approach in writing movement, who is claimed the creator of dance notation. His Chorégraphie ou L'Art d'Ecrire la Danse with modifications used widely throughout Europe during the seventeenth century (5), was published in 1701 and translated into English by John Weaver in 1706 (40). Social dances and performances of the Paris Opera were notated in the Feuillet system, and recorded dances were exchanged all over the world by dancing teachers.

Woody (40) described how Feuillet notation divided the body into a right and a left side by using a central line (), the curve of which indicated the direction of the movement, with bar lines to denote tempo. In addition, she explained that perpendicular to the beginning of this central line were two semicircles below a horizontal line (), which indicated the starting position of the dance. A circle with a line attached () represented a stationary foot position, with the circle as the heel of the foot and the top of the line, the toe. An eighth note symbol with an angled flag () indicated the direction of the foot. Additional lines on the note described level. A square () represented the four corners of the stage ". . . in relation to the dancer and his individual movement." (40:59) Marches and rounds were indicated in separate squares because they were done in definite patterns inside the room. All ". . . steps, jumps,and movements of the head, arm, and knee . . ." (26:98) were also described. Although the Feuillet system

met the needs of the period and was extremely well organized, only foot work and patterns were recorded (5). Detailed movement was taken for granted (20) and clear rhythmic indication was lacking (5).

Woody remarked that it was like a ". . . field day for notation systems . . ." from 1700 - 1800 as ". . . practically everyone of any importance in the dance tried to get into the act." (41:58) Because of the new complicated techniques in dances, notators had to improve the present system of Feuillet's or invent one of their own.

An Englishman, Kellom Tomilson, attempted to simplify Feuillet's notation when he published a translation of the French Art of Dancing. George Bickman tried to invent a new system in 1738 in his book entitled, An Easy Introduction to Dancing, published in London. A verbal explanation labelled drawings of the hands and feet in proper positions for both the men's and ladies' steps. "Artistically, it was a charming conceit, but it could hardly function as a true method of notating dance." (41:59) Louis Dupré marked symbols on the top of musical notes. Favier made minor changes on a combination of Dupré's and Feuillet's works (26) by using the original forms and shapes to indicate the time of the steps (41). The pirouette from the minuet was recorded by Dufort from Germany. Pierre Rameau simplified and improved the Feuillet system, adding arm and hand positions to the floor pattern of the notation. Malpied devised a system of notation much the same as Rameau's notating the basic five positions of the arms, hands, and fingers (26). Woody credited Malpied as being the first to notate the positions of the arms by using symbols corresponding to the sequential steps and music. However, she stated

> . . . Malpied devised original arm movement symbols, his notation principle seems to have been based on Rameau's which in turn was based on Favier's adaptation of the Feuillet notation! (41:59)

Giovanni Gallini, well-known ballroom dance instructor, notated the floor patterns and descriptions of his dances (26), but thought the Favier-Feuillet system was ". . . unintelligible and useless. . . ." (41:59) Ginnaro Magri recorded arm actions, pauses, and creative movements along with the floor pattern. Salvatore Vigano unsuccessfully attempted a pantomimic alphabet recording the sequences of ballroom dancing (26).

Jean George Noverre, a famous dance reformer during the 1700's, violently opposed Feuillet's method of notation. In his opinion, the system was used only to describe steps and leg movements (7), thus he preferred a verbal recording of his ballets (5).

> Noverre had none of his ballets notated, none remain, while those dances that were notated in Feuillet's 'too difficult' notation can be read and reproduced today by anyone who will take the trouble to study Feuillet's L'Art D'Ecrire la Danse. (41:59)

Fencing activities as well as horse ballets were notated in Spain and France during the eighteenth century. Many of the basic positions in fencing are similar to those of ballet (26).

The third phase of dance notation began with Charles Victor Arthur St. Léon's Stenochoregraphie in 1830. Using a six-line dance notation staff, with a wide space between the last two lines, he made up his own stick figures and placed them on the horizontal lines in the staff, just above the musical score (42). All the steps performed on the ground were recorded on the first five lines, while the steps in the air were placed in between. The last line designated the shoulder with the normal head position above the line and the torso and arms below. All symbols were

drawn as seen by the spectator (26). Two straight lines perpendicular to a short line (⊓) represented the lower extremity. A heavier line represented the leg that was supporting the weight of the body (⊓). A number indicated the position of the feet, as they were not drawn (42).

The Russian, Vladimir Stepanov attempted to create an alphabet to record all human movement (11). With the use of music notes, he adopted an anatomical method of analysis (43) which divided all movements into two categories (11). The principal movement was represented either by oblong notes which indicated contact with the ground or by round notes for elevation. The stem of the note pointed in the direction of the moving body part; down for the right extremities and up for the left (43). Sharps and flats represented the secondary movements (11) of flexion, rotation, or the supporting body part, and were placed next to the notes (43). Each line represented a part of the body,

> . . . four lines for the legs, three for the arms and two for the head and body. They were separated by spaces, but all three were tied together as a staff by clef signs of his own invention. (43:55)

Adaptations of Stepanov's system of notation are still used today. The primary use of his system has been for notating ballet movements (26).

Bernard Klemm, a German, used a musical notation system similar to Arbeau's but with shortened accompanying explanations. He drew the corresponding movements of the right and left feet on the same side of the musical note. Symbols were used in addition for direction and elevation (26).

A Professor Peters developed a notation system representing a combination of the systems of Feuillet, St. Léon, and Stepanov. With the use of musical notes, he indicated the direction of movement by the placement of the stem of the notes. His aim in notating was ". . . to record and

make precise all the details of the execution of a dance, and to give a true picture as to its form and to its rhythm." (26:118)

The first account of movement notation mentioned in an American publication was in an 1882 edition of The Saturday Evening Post. M. Francesco, a ballet master from London, visiting the Academy of Music in New York, was said to have made ". . . mystical figures upon a sheet of paper . . . ." (26:117)

Frederick A. Zorn recognized the lack of a notation system to perpetuate dances and hand them down to posterity (13). He indicated the feet in proper position, rather than the use of St. Léon's minute symbols and ". . . proudly announced that they need no comment. 'They explain themselves.'" (42:61) According to Zorn (13), his system ". . . amplified and perfected . . ." St. Léon's system because of his true skeletal drawing. Zorn used drawings of the human body and placed the rhythmical structure between the music proper and the dance notation. Stepanov (11), however, considered Zorn's system to be a very unhappy modification of St. Léon's system.

Twentieth Century Notation Systems

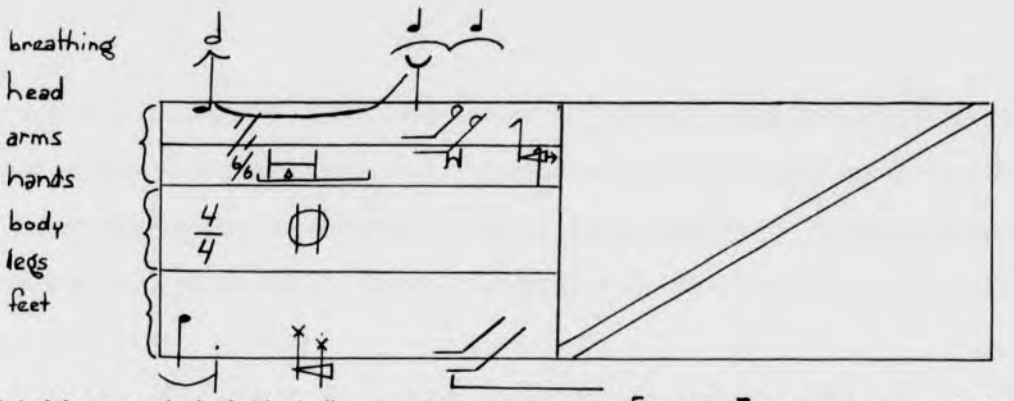
The motion picture was supposed to be a replacement for notation systems in the twentieth century; (26) but this has not occurred, just as "recorded music has not obviated the printed sheet." (5:6) Hutchinson has said that although films are unique in studying performance, they cannot reveal the choreographer's exact design. "Also the advantage of easily accessible pencil and paper in contrast to expensive camera equipment and projection is undeniable." (5:6) Nickolais agreed to the importance of films, but added that professional students needed ". . . a detailed score

of some kind, just as the conductor needed the score of a symphony." (33:63) Balanchine also remarked that he found the motion picture useful only to indicate the style of the finished product and to suggest the general visual picture and staging.

> A film cannot reproduce a dance step by step, since the lens shoots from but one angle and there is a general confusion of blurred impressions which even constant re-showing can never eliminate. (5:ii)

Madame Nijinsky finally revealed her late husband's notation system which had been kept unpublished. His system is related to Stepanov's which Vaslav Nijinsky studied as a youth (25). With square notes to indicate support and round ones for gestures on a three-line (44) music staff modification, he represented level by numerals and direction by the lines and spaces (5). Woody (44) described Nijinsky's system as notation "in the round" because he placed the human body inside a ball which was divided into segments with a network of circles tangent to the arms and legs of the dancer.

Margaret Morris developed a highly individualized notation system, described in her book Notation of Movement, published in 1928. She used a five-line horizontal staff (8) to represent the body with various symbols and numbers or notes to indicate direction and timing (25). The movements of the right arm and leg were recorded on the line; the left arm and leg under the line. Some of the directional symbols were: forward ( ), sideward ( ), backward ( ), and perpendicular ( ). A normal body position was indicated by a wide H ( ). Morris (8) included a notation of the breast stroke in her book.



Hutchinson stated that ". . . the signs she [Morris] chose were arbitrary, following no logical sequence and containing no provision for the indication of rhythm." (5:3) Juana de Laban (26) commented that, although the sketches were well drawn, the accompanying symbols of the Morris notation failed to convey a clear picture.

Pierre Conte's system of notation, approved by The National Center for Scientific Research in France (44) was published in 1923. He used a seven-line staff ". . . with one line for each of the following: expression, arms, head, trunk, feet, positions and directions." (26:123) Music notes determined the tempo and digits from zero to five or combinations of them were used for directions in space (25). Abbreviated French words provided additional information. Hutchinson attributed Conte's lack of success with his notation to ". . . the fact that he, as a non-dancer, has set himself up as the judge of what is important in recording movement and what is not." (25:37)

In Italy, Lt. A. Chiesa recorded ballet movement in his notation system called Motographia. His symbols, representing movement on the lines and the notes representing the parts of the body in the spaces, corresponded to the value of the music notes on the horizontal staff.

In the early 1900's Professor Rudolph von Laban, well-known in the dance field as a proficient choreographer, dancer, and theoretician, created

a method of notation. With the use of Beauchamp's and Feuillet's principles this system developed from early experiments with movement symbols for his own personal needs to a larger scale of recording opera ballets, dance plays, and festival plays (26). Laban (7) explained the concepts he retained in his notation:

1. The use of the central line to separate the sides of the body.
2. The sectioning of the line into divisions for the measures.
3. The use of signs and symbols for direction and shape of movement.
4. The indications of basic body actions.

There were three main differences between the Laban and the Feuillet systems, however:

1. The writing of movements in a straight line rather than the previous floor pattern line.
2. A more extensive vocabulary with other parts of the body included.
3. The analysis of shapes of movements in space and special directional signs.

> In 1928, Rudolph Laban published a new system of notation, in which he introduced the vertical symmetrical staff, read from the bottom up and clearly picturing, for the reader facing the score, right and left, front and back. The other invention which has made his system so flexible is using the length of the symbols on the staff to indicate duration of movement. (5:3)

Juana de Laban (26), the daughter of Rudolph von Laban, explained how she divided the vertical staff into columns, representing parts of the body;

columns to the right of the central line are for the right side of the body, and to the left of the central line, the left side. She further described that Laban's notation alphabet consisted of directional symbols, representing the length of the movement by their shading and time value by their size, symbols for joints, surfaces of the body, and ". . . signs for touching, sliding, turning, floor patterns, dynamics, and so on." (26:124) The basic principles of Laban's notation were the recording of simple movements in the most direct way and the recording of everything that occurred (5). Hutchinson added that this notation was a ". . . movement notation since the symbols represented movement, and absence of movement is shown by the absence of symbols." (5:9)

Stepanov referred to Laban's method as "the most scientific of all . . ." (11) Morris (25) stated that although she stood by her own system of notation because it worked well for her, she would willingly concede that Laban's system, or any other was better than her own. On the other hand, Nickolais mentioned that Laban had made the ". . . most exhaustive analysis . . ." of notation, but his symbols were "cumbersome", inflexible, bulky, and used very little. However, he added that ". . . . Laban's research constituted a significant advance in that it looked upon movement as a science capable of being recorded." (33:63)

Sol Babitz, the only American to undertake the study of movement notation (26), claimed he invented his system in five minutes although it took five years to perfect. His method was based on the principle of recording what was seen, in a simplified manner without arbitrary rules and formulae (48). With the use of one-fourth inch graph paper, Babitz placed all movements of the body into a unit of two squares by

five (26), that could be conveniently written during one beat of time. According to Babitz (48), these units were read from right to left, with each square in the unit representing a part of the body. He further explained how the starting position of a major movement was indicated by dots and direction by a line attached to the dot. Laban (26), however, stated that although Babitz's notation appealed to the eye, many defects were apparent upon closer examination.

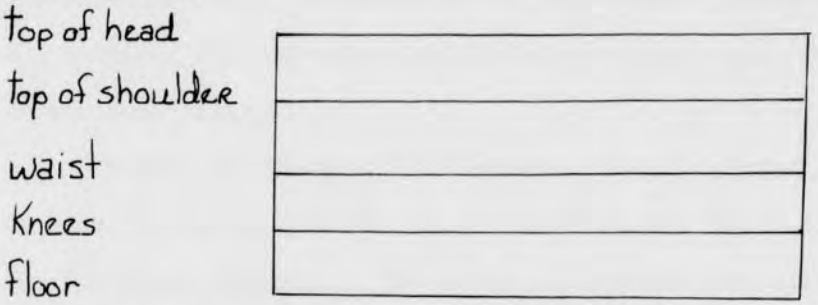
Juana de Laban (26) cited two Master's theses on recording movement found in the literature on notation systems. In 1934, Gertrude Cross studied the possibilities of describing dance movements in kinesiological terms at Claremont College in California (51). At the University of Illinois, in 1942, Jean Craighead developed a system of notating modern dance (50). No further study or application was evident in either work.

James Nadich used a system similar to that of Nijinsky. He divided a ball into segments in his notation. Inside the ball he recorded movement as a set of stationary positions. In addition, only the steps which needed to be marked for a specific reason were written (26).

Choroscript was the name given to the system used by Alwin Nickolais to notate body action. In order to prevent distortion or ". . . . loss of the choreographer's intention. . .," (33:63) Nickolais used the two dimensional surface of a sheet of paper. Juana de Laban (26) stated that this system developed from notes which Nickolais made in the margin to explain symbols he found unsatisfactory in other systems.

Social dancing has contributed little to the development of a movement notation system, although many methods of recording have been invented and used throughout the twentieth century. Only the floor patterns with some additional numbers or letters representing the dance steps are notated in these systems.

Rudolph and Joan Benesh have a modified stick figure notation system with the musical staff representing the body (25). The five lines in the staff ". . . form a perfect base or matrix for the human figure." (2:10)



Simple dots and strokes illustrating direction, movement lines to connect positions, and numerals or music notes to show timing are placed on the staff (25). Some of the symbols used in this method are: level with the body (——), in front of the body (|), behind the body (•), bending level with the body (—+—), bending in front of the body (+), and bending behind the body (X) (2). The Benesh notation is a quick way of writing complicated steps (25) and was used for recording classical ballet in England during the 1950's. The Can-Can, Charleston, head stands, back somersaults, and remedial exercises have been recorded with this method (2).

Harold Lander, Ballet Master at the Paris Opera, realizes the limitations of his personal shorthand system of notation, but uses it, just the same, because of its adequacy. "He makes use of abbreviated ballet terms, arrows, dots, dashes, and stick figures." (25:55) Neils Bjorn Larsen, former Ballet Master of the Royal Danish Ballet, also uses his own shorthand notation system of floor plans, stick figures, and word notes.

Massine, Ballet Master of the Royal Danish Ballet, uses an adaptation of the Stepanov method to record movement. Hutchinson overheard his Ballet Mistress groaning once during an interview because of the time she spent in taking notes. "She looks forward to the day when all visiting choreographers will rehearse from a score which all can understand." (25:56)

Eshkol and Wachmann (4) organized their notation manuscript page by using two perpendicular lines. The vertical line represents the body and the other the tempo. The X line is divided into six groups of equal sections representing parts of the body. Numbers, signs, and symbols are recorded inside the spaces of these sections.

Eugene Loring has devised a similar system of notation. His vertical staff is marked off into counts and bars for tempo with a column for each individual part of the body. Direction, unusual movements, emotions, and special events can be recorded also (25).

Jnotation, the most recent system in the literature, was introduced by Leticia Jay in 1956. Like other methods, it makes use of the music staff, arrows for direction, numbers or notes to indicate timing, stick figures, and additional word abbreviations. Woody cited that

> The most important original contribution of Jnotation probably lies in the concept of the anatomy figure. It is a transparent figure which may be viewed from any started location. (46:59)

On the other hand, Hutchinson stated that the fact "that Mrs. Jay seriously considers her approach as an improvement over existing systems merely demonstrates lack of experience of what other systems have accomplished." (25:58)

Labanotation. Rudolph Laban's system of notation has had widespread use in Europe and America during the last thirty years. Laban (7) stated with pride that, in this time, his fundamental movement symbols had not changed, several dances had been recorded in this system, and many people were beginning to specialize in notating movements.

In three different corners of the world there are three groups using Laban's system of notation today. In Essen, Germany, there is the Kinetographische Institute with Albrecht Knust as the head; in London, the Dance Notation Centre with Lisa Ullmann and Sigurd Leeder; and in the United States, with Ann Hutchinson serving as the Honorary President, the Dance Notation Bureau with headquarters in New York (7). Labanotation is the name given to this method of recording movement by the latter group. In 1952, the Dance Notation Bureau, a non-profit organization, selected Labanotation as ". . . the official method of notation for dance material submitted to the government for federal copyright." (25:36) The Bureau, information and activity center in the dance field, achieves its aim of furthering this art form with the use of Labanotation, offers courses and lectures in Labanotation, and publishes books and dance scores in Labanotation (5).

The Rockefeller Foundation demonstrated its confidence in the value of Labanotation with a grant awarded to Miss Hutchinson in 1955. On behalf of this grant she did extensive research on all the notation systems used abroad in preparation for a book series on notation (25).

Although recording movements for preservation is the most obvious use of Labanotation, it has many other functions. It is effective as a teaching aid and ". . . because the notation is based on scientific analysis of the elements of movement, the student learns from it the nature of the component parts of the action he is to perform." (5:5) Yet, Labanotation

is simple enough to introduce it into the curriculum of a child's dance training. Laban (7) used his system in industry to improve work methods, train apprentices, select managers, and in rehabilitation centers. Labanotation is universal as it can be applied to ". . . ballet, the modern dance, acrobatics, sports, folk and social dancing, and to other stage actions as well." (26:1) Hutchinson remarked that Labanotation has been used chiefly in the dance field, but ". . . it is applicable to any field in which there is a need to record the motions of the human body." (5:5)

History of Synchronized Swimming

Introduction. Synchronized swimming is an important part of many school, college, and recreation programs throughout the United States, Canada, and other countries. This popular aquatic activity has been valuable in the perfection of form in swimming strokes, development of endurance and relaxation, as well as the fulfillment of interests for the strong graceful swimmer who is not interested in speed swimming. Hendrick compared the relationship of synchronized swimming to regular swimming ". . . as that of 'fancy skating' to regular skating . . ." and the judgment of competitive synchronized swimming to diving (23:21).

Russell said that synchronized swimming belonged in the educational swimming program

> . . . because it is an organic and neuromuscular developer; because it promotes the feeling of importance of the individual as a part of the group and because it is an enjoyable activity with an appeal which induces the student to elect it. . . . (59:31)

McCloy stated that

> Here to the other pleasures of swimming has been added the pleasure inherent in water ballet and group coordination of effort--all performed to appropriate music and so executed as to compare favorably with the aesthetics of dance. (12:v)

Gundling recognized synchronized swimming as an art form as well as ". . . one of the fastest growing sports in the United States and Canada. . . ." (22:7) But, she added, like all art forms, it must have creative activity for existence.

Anselin explained that the criteria for the development of an art form were ". . . balance, rhythm, clarity, unity, creativity, communicativeness, and independence." (47:36) She added that synchronized swimming contained all of these with the exception of independence because composed music was used. Later she reflected that eventually a higher level of skill will be attained in this activity to allow a freer choice and a wider range of movement so that compositions will be created with composed musical accompaniment.

Martin remarked how "composing a fine synchronized swimming routine requires some of the same sort of genius as ballet choreography." He added that in synchronized swimming all movement was the domain, since there was ". . . more freedom in the water than you will ever have running on the ground or leaping into the air." (29:12) von Wietersheim referred to Murphy who stated that synchronized swimming was a field in which ". . . the utmost in creative ability and ingenuity, augmented by interest in dance, art, and designing costumes" was offered (66:36). Heller (55) placed sychronized swimming in the swimming program as an integral part of the advanced swimmer's skills and knowledges, although some basic skills could be included at a lower level.

Many descriptions of stunts that are used in synchronized swimming today are found in old books on water activities. For example, "treading, log rolling, somersaults, sculling, marching on the water, pendulum,

planking, and the torpedo. . ." (55:12) were mentioned in an 1893 text written by Sinclair and Henry and published in London (55:12). England, Germany, and Canada sponsored synchronized swimming type activities long before the United States demonstrated any interest (57). In England, group swimming was a part of the swimming galas (3). Germany had floating formations known as "Figuren Schwimmen" in which competition was held for years. The Canadians conducted competition in what they termed "ornamental swimming"(57). "Ornamental swimming" and "fancy swimming" were part of the aquatic program in South Africa during the early 1920's (66).

United States. In the United States, first mention of this new aquatic activity was made in 1904, by T. B. Handley, Olympic swimmer and captain of the New York Athletic Club swimming team. Heller cited Handley as stating that ". . . fancy swimming was seldom seen in water shows or water carnivals because competitive swimming held the main interest of swimmers and they did not have time for the other." (55:14)

Between 1910 and 1913, water pageants became popular, utilizing stunts and group swimming. The themes of these early pageants were usually about the sea with little swimming and much emphasis on dramatic activity (57). Annette Kellerman was most instrumental in developing pre-synchronized swimming activities, (62) as early as 1910. She attracted much interest in this new phase of swimming while demonstrating the different swimming skills and various simplified stunts at the White City Park in Chicago (52). One week she gave fifty-five demonstration performances (62).

Katherine Curtis and Gertrude Goss were the early pioneers in synchronized swimming in the United States. "Curtis organized the 'Tarpon Club' in Chicago University in 1923, and in 1924 Goss organized the 'Life Guard Club' at Smith College." (57:5) The performance of group stunts, strokes, and floating patterns progressed from isolated skills to musical accompaniment which was called "rhythmic swimming" by Curtis and "water ballet" by Goss (47).

The first actual use of the term, synchronized swimming, was in 1933 by Norman Ross at the Chicago World's Fair (57). Ross coined the words as he introduced the "Modern Mermaids" (66) coached by Katherine Curtis, (47) who performed a swimming exhibition to musical accompaniment (57). A co-ed synchronized swimming group was formed at Wright Junior College in 1937 and a year later, Chicago State Teachers College added this aquatic activity to its program (58).

The first competition in the United States in synchronized swimming was held in Chicago, in 1939, at a meet between these two schools, under the rules devised by Curtis (47). Amateur Athletic Union standards were established in 1940 for competitive synchronized swimming (55). In 1946 and 1947, the first outdoor and indoor duet and team championships were held (47). A Pan-American exhibition was held in 1951. During the Olympic Games of 1952, in Helsinki, and in 1956, in Melbourne, daily exhibitions were given in synchronized swimming (55).

To emphasize the more creative side of synchronized swimming, the International Academy of Aquatic Art was established in 1955. Its founder, Beulah Gundling, was the Senior Outdoor National A. A. U. Synchronized Swimming Champion from 1950-1952 (18). This non-profit organization

sponsors workshops, symposiums, and festivals each year with instruction in aquatic skills and composition evaluation (9). The Division of Girls and Women's Sports, The Women's National Aquatic Forum, and The American Association of Synchronized Swimming for College Women are additional organizations which provide opportunities for future developments in synchronized swimming.

The 1964 United States Olympic Synchronized Swimming Committee is now making the necessary preparations for the initiation of synchronized swimming into the Olympic Games in Tokyo.

Synchronized Swimming Notation Systems

A notation system is probably as important in synchronized swimming as it is in dance. If a common method is not established soon, the art of synchronized swimming may encounter some of the problems that dance has had in the past. Some aquatic leaders are beginning to realize this fact as they visualize the benefits of such a recording system. Gundling (9) insisted that all performers and teachers of "Aquatic Art" should keep some recording of their work.

Juana de Laban described notation as having ". . . provision for form and rhythmic movement, dynamic quality, style, and finally the expressive element." (26:89) All of these qualities are an integral part of synchronized swimming. According to Myers, synchronized swimming notation should ". . . present an entire picture of the routine, showing the patterns and formations of the swimmers." (32:39)

Heller believed that the original plans of a synchronized swimming composition should be recorded ". . . to facilitate intrepretation of the

pattern and to keep the pattern constant." (55:68) According to Washington, (65) after all the changes and adjustments are made on the choreography, it should be recorded in final form, made available at practice sessions, and finally filed for future reference. Seller and Gundling (9) realized that since compositions tend to be forgotten when they are not performed frequently, they should be recorded entirely and completely for posterity. Myers (32) also agreed that a definite notation of the final routine should be made, but then she added, that a more flexible recording should be used during the choreographing process. Spears (61) believed that it would be interesting for groups to exchange notated compositions to develop a "repertoire" of synchronized swimming.

Yates and Anderson felt that musical notation was equally as important, in order to have ". . . a clear picture of the musical structure, the proportion of each part to the whole, and the general feeling of the music." (12:120)

Heller suggested that the planning of a synchronized swimming composition should be undertaken

> . . . in the following order: analysis of the music to determine tempo, measures, and phrases; notation of the pattern; practice out of the water; practice in the water; and the refining of the movements. (55:68)

Gundling (53) indicated that little research had been done on an actual system of notation in synchronized swimming. Miller (56) knew of no system of notation, but she thought that each choreographer had her own preferred manner of recording the swimmers' movements. Swain (63) realized the need for such a system in synchronized swimming.

In reviewing the literature on notation systems used in synchronized swimming, the author found little agreement in symbols used for

execution, tempo, and direction. Seller and Gundling (9) described some of the methods used in notation:

1. Listing skills in order of use.
2. Outlining music structure and grouping skills into phrases according to the music.
3. Complete description of movements with a number of measures or counts, stick figures, and pool patterns.
4. Tape recording of instructions with accompaniment.
5. Motion pictures.

Myers (32) suggested more specific methods in describing synchronized swimming notation:

1. Diagrammed uses of arrows; dotted lines; and broken lines.
2. Stick figures; labelling swimmers with numerals and letters.
3. Brief descriptive analysis of movement.
4. Number and kind of stroke or stunt.
5. Number of beats or measures needed.
6. Tempo and volume of music.
7. Props, lighting, and costumes needed.

Yates and Anderson (12) used a similar method adding a written explanation of the starting position; a broken line to indicate the path the swimmer had followed; a dotted line to represent the path the swimmer expected to follow; a detailed written explanation of the performance; and white and black circles or squares used as heads of the stick figures. Miller (30) used a much briefer explanation of the execution than Yates and Anderson. She divided the notation into three parts:

1. General analysis of music.
2. Detailed analysis and description of each measure in an abbreviated form.
3. Accompanying pool pattern diagram.

Heller's (55) method included more emphasis on a pool diagram with numbered corners. Entrance, exit, and musical analysis were indicated on the diagram. Arm, leg, and hand positions were represented in stick figures. Daviess (19) used a notation almost identical to Heller's except for numbering the stick figures to correspond to the swimmers and the use of circles to indicate treading water.

Pendergraft (57) used a natatography chart to record her notation which was composed of three columns. One represented the number of measures; the second, a description of the swimming skill involved; and the third, the position of the swimmers at the end of the measure. A letter in the last column corresponded to a pool diagram. Small letters were used to label the swimmers; capitals for the diagrams.

Tiemann (64) used a natatography chart arranged in a horizontal manner. A three part numbered pool diagram was on top with arrows and numbered stick figures, each representing one music phrase. Corresponding numbers were below the diagram with two lines for each phrase. The first line contained divisions for the beats of the phrase with a one word description and the second line contained a more detailed description.

von Wenck (36) used stick figures drawn to the contour of the swimmers' body position, numbered diagrams, and measures, with a written explanation of the skills involved. Campbell (14) used numbered diagrams with stick figures, explanations, and stick arms and legs only for stunts.

Carpenter (15) and Carrell (16) had "X's" to represent their swimmers instead of stick figures. Lea (28) used "O's"; Goss (21) used white and black circles with arrows attached; and Smith and Hicks (34) indicated their swimmers with a combination of all of these methods.

The only concentrated study on a notation system found in the literature was an undergraduate thesis project done at Skidmore College by Suzanne Clover Schmitt in 1961. According to Schmitt (60), much time was spent investigating the possibilities of adapting a dance notation, but the idea was discarded because of the degree of study and lack of simplicity involved. Her system of notation included columns for measures, pool diagrams, styles of movement, music dynamics, beats of music, stunts or strokes to be performed, and a breakdown of each skill (49). Two basic forms were used, four groups of lines for 4/4 or 2/4 rhythm and three groups of lines for 3/4 or 6/8 rhythm. Within the pool diagram, dots represented individual swimmers; lines, a group of swimmers; arrowheads, direction of travel; and directional symbols of the compass, the facing position of the swimmers. Symbols represented styles of movement, such as jerky, smooth, and graceful. Music abbreviations for dynamics were utilized. Capital letters indicated strokes and stunts further by non-capital letter abbreviations. Depth of the body position in the water was illustrated.

The author recognized many fine points in Schmitt's notation. However, it would appear that all movement could not be recorded, especially newly invented techniques and the many creative skills utilized in synchronized swimming. Although this method of recording is a practical one in some respects, it lacks provisions for analytical movement and creativity.

A common notation system is needed in recording synchronized swimming movements for the swimmer, instructor, and natatographer. This system must permit an easy and discernible recording of the basic structure of a natatography and each specific movement of the swimmer in its entirety. It must describe accurately the direction, level, and force of each movement. The timing and texture of the movement must be included.

These characteristics of a synchronized swimming notation system motivated the study of Labanotation and its possible adaptation to Synchronized Swimming.

CHAPTER IV

PROCEDURE

This study involved the use of the Labanotation system of recording movement and the development of a synchronized swimming natatography. Each aspect was then combined in order to determine the possibility of notating a synchronized swimming routine in the Labanotation system.

The Study of Labanotation

The writer attended classes in Labanotation for two semesters at The Woman's College of The University of North Carolina to acquire a basic knowledge of this system. To become acquainted with the history of notation, an investigation was made of notation systems used to record movement, dance, and synchronized swimming. Literature was reviewed in these areas and letters were sent to leaders in the field of synchronized swimming to determine the systems of notation in existence. Letters of reply are included in the appendix.

The Adaptation of Labanotation to Synchronized Swimming

Albrecht Knust, in his Encyclopeadie of Kinetography Laban, adapted Labanotation to swimming. The main difference between the recording of dance and swimming was in designating the support of the body. In dance the body provides the support for its weight but, according to Knust, (6) in swimming the body is supported by the water and propelled by arm and leg movements with pressing and thrusting gestures. The letter "W", representing the German word Wasser or the English word Water, was placed in a rectangle and connected by a line to the support column, indicating

the supporting element. The German word for surface is Spiegel. An "SP", representing the German word Wasserspiegel, designated the distance of any portion of the body under or on top of the water. The letter "B" indicated the floor of a body of water and represented the German word for floor, Boden.

Labanotation was then applied to synchronized swimming. Starting positions were recorded as well as fundamental skills utilized in synchronized swimming. This was done to provide the writer with experience in making this application as well as to assist the reader in understanding the application of Labanotation to synchronized swimming.

The Application of Labanotation to Natatography

The writer served as one of the faculty advisors to the Dolphin-Seal Club at The Woman's College of The University of North Carolina during the 1962-63 school year. The writer assisted the vice-president of the club in the natatography and direction of a routine for five apprentice swimmers entitled, "On Your Toes". An arrangement of "I Feel Pretty" by Ferrante and Teicher and their orchestra on a 45 RPM United Artist recording was used for accompaniment.

Skills were selected in accordance with the intermediate level of these swimmers. Emphasis was placed on a general theme of sophistication and height to represent a pair of high-heeled shoes in conjunction with the "shoe theme" for the 1963 Dolphin-Seal Pageant.

The musical accompaniment was carefully analyzed by beats, measures, and phrases. After the final development of the routine and the subsequent performance of it during the Dolphin-Seal Pageant, the entire natatography was recorded in Labanotation. Miss Virginia Moomaw, a certified Labanotation

Instructor and member of the Dance Notation Bureau, reviewed the Labanotated score and suggested the necessary corrections.

The Labanotation of the natatography which follows represents the recorded performance of five swimmers in a three-minute and forty-five second routine of 242 measures of music. The appendix contains additional Labanotation of starting positions and fundamental strokes and stunts in synchronized swimming for the benefit of any who wish to pursue the application of this method.

ON YOUR TOES

Natatography

by

Ruth Patton

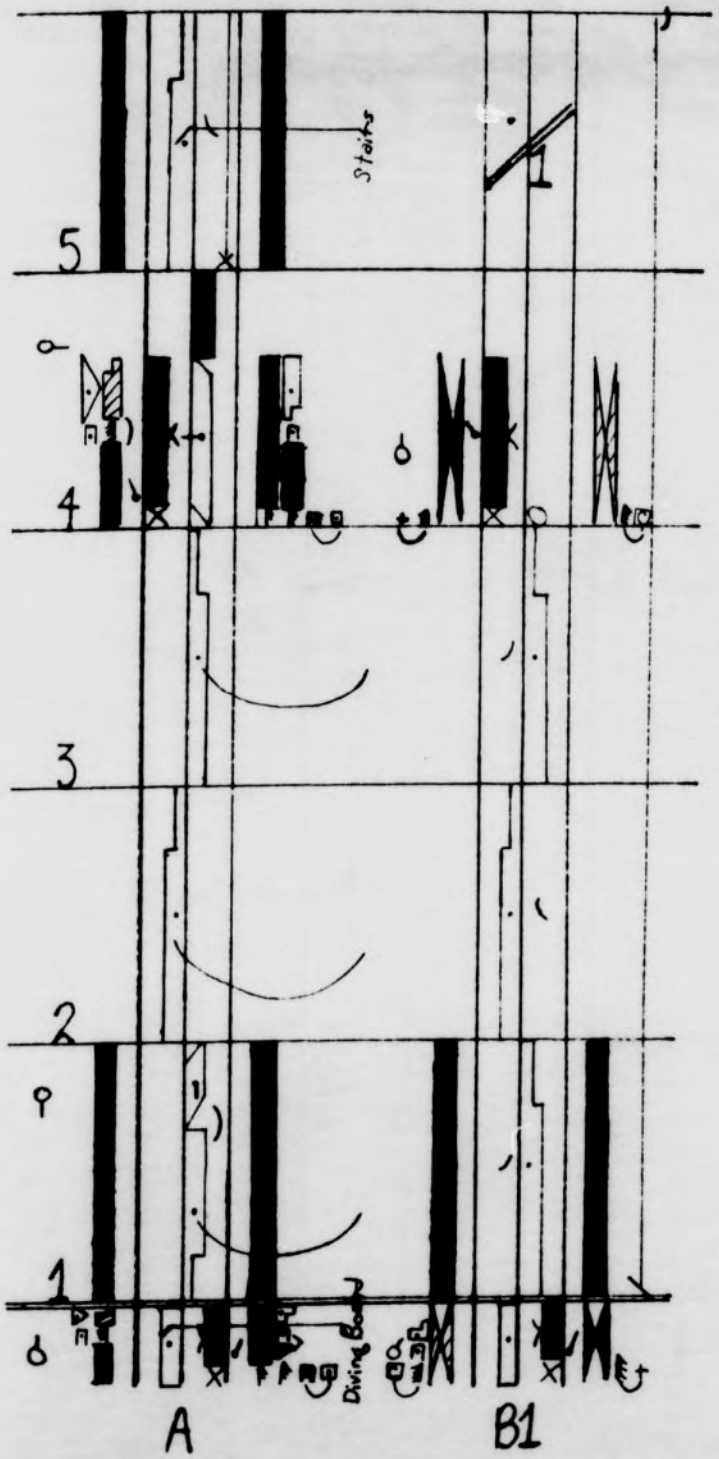
1963

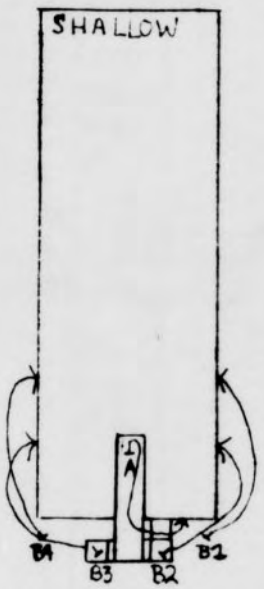
Recording - I Feel Pretty
45 RPM
1558B

Publisher - United Artists

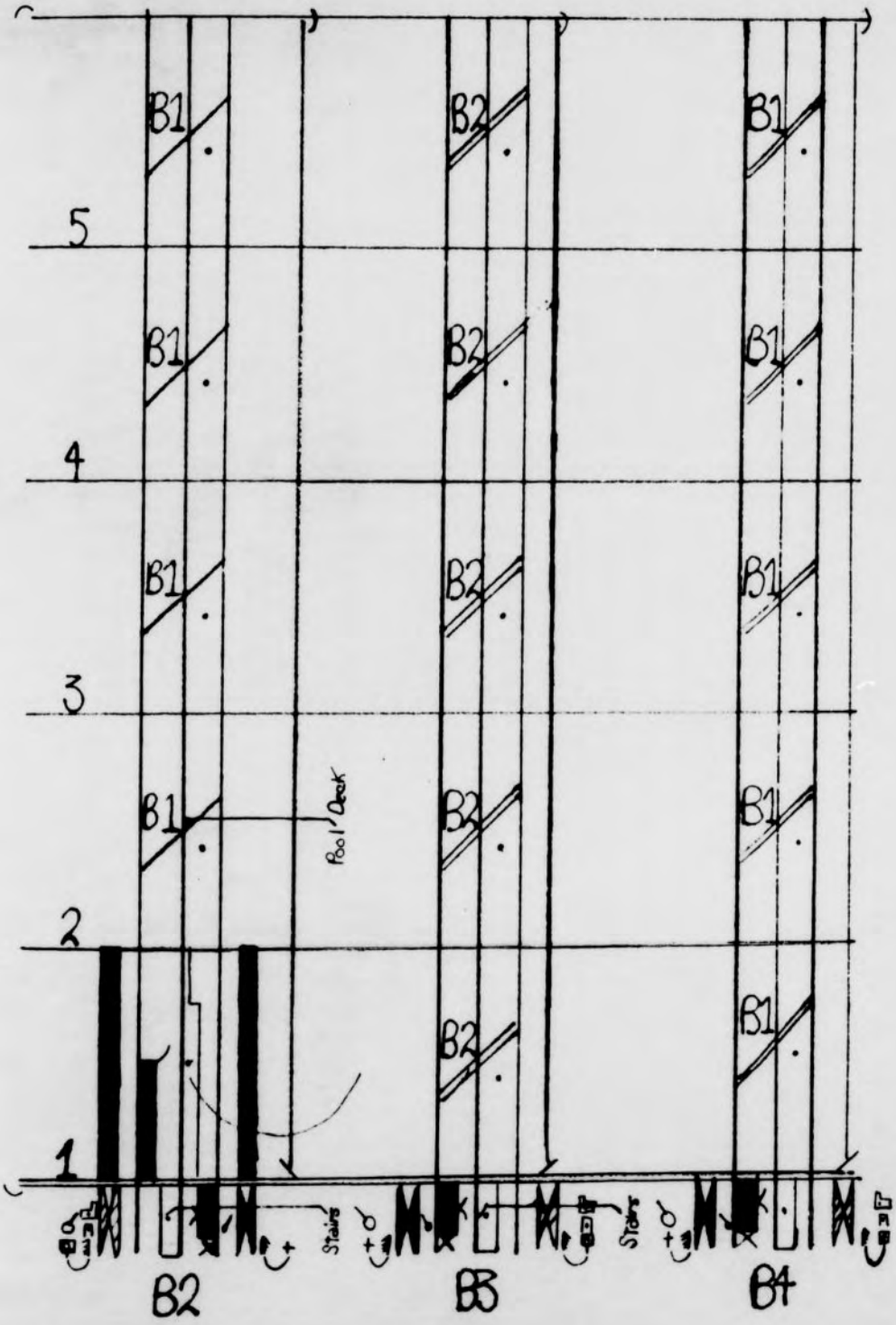
Composer - Lenoard
Bernstein
Stephen
Sondheim

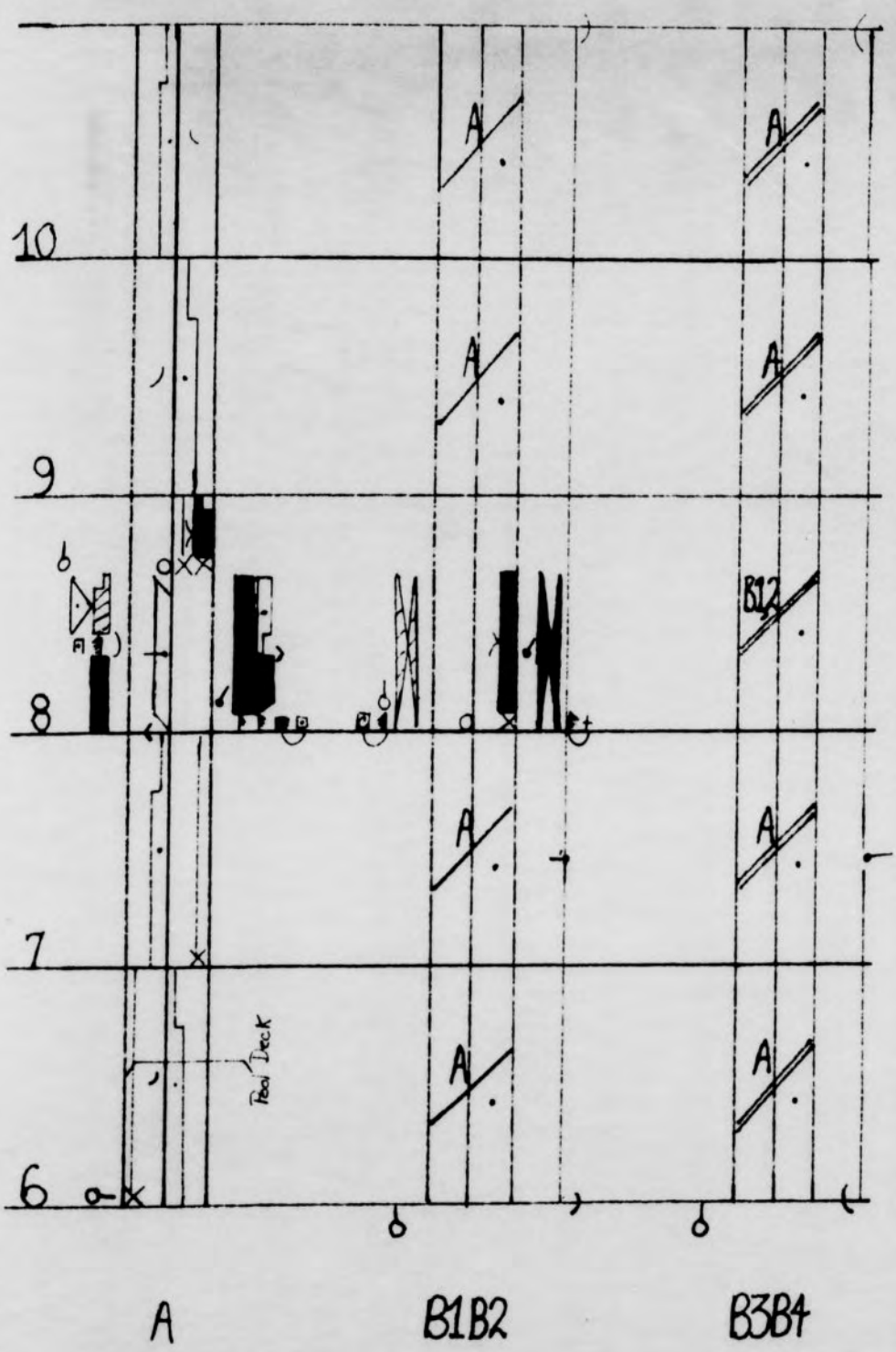
Arranger - Ferrante and
Teicher and
Orchestra





Meas. 1-14


B1
B2
B1
B1
B2
B1
B1
B2
B1
B1
B2
B1
B1
B2
B1
5
4
3
2
1
Pool Deck
Stairs
Stairs
B2
B3
B4


10
9
8
7
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A
A
A
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A
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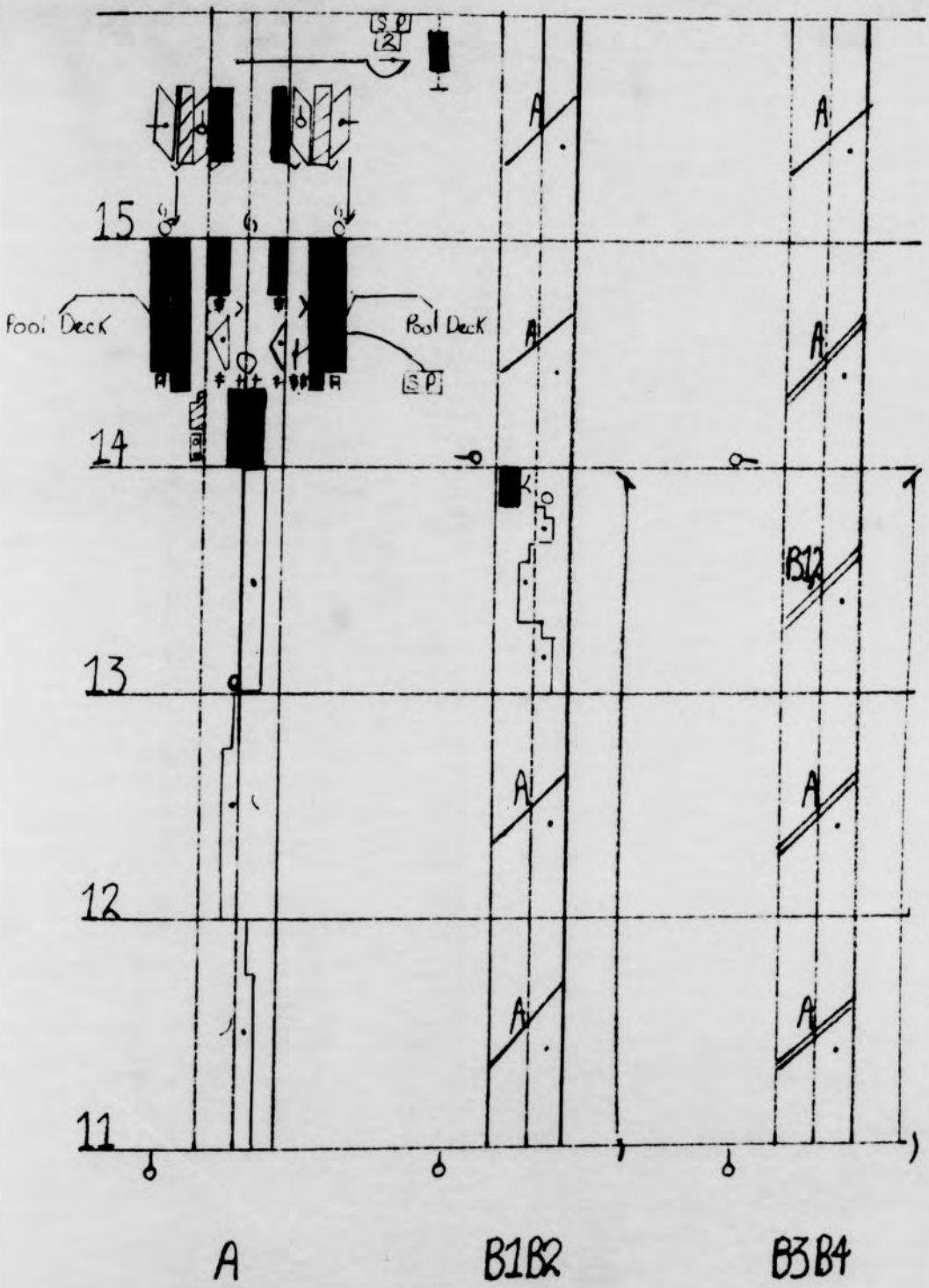
B1B2
Pool Deck
A
B1B2
B3B4


15
14
13
12
11
Pool Deck
Pool Deck
A
A
A
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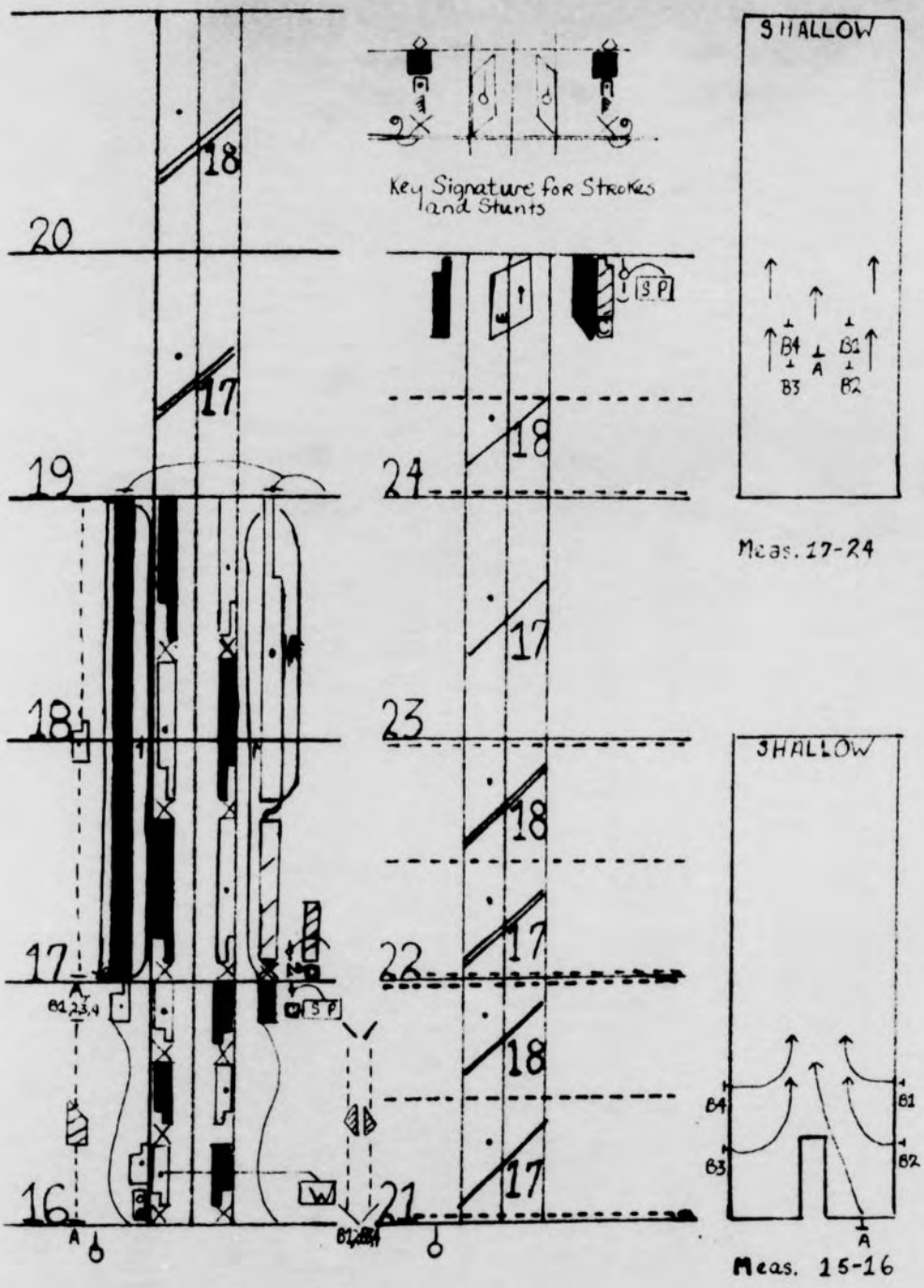
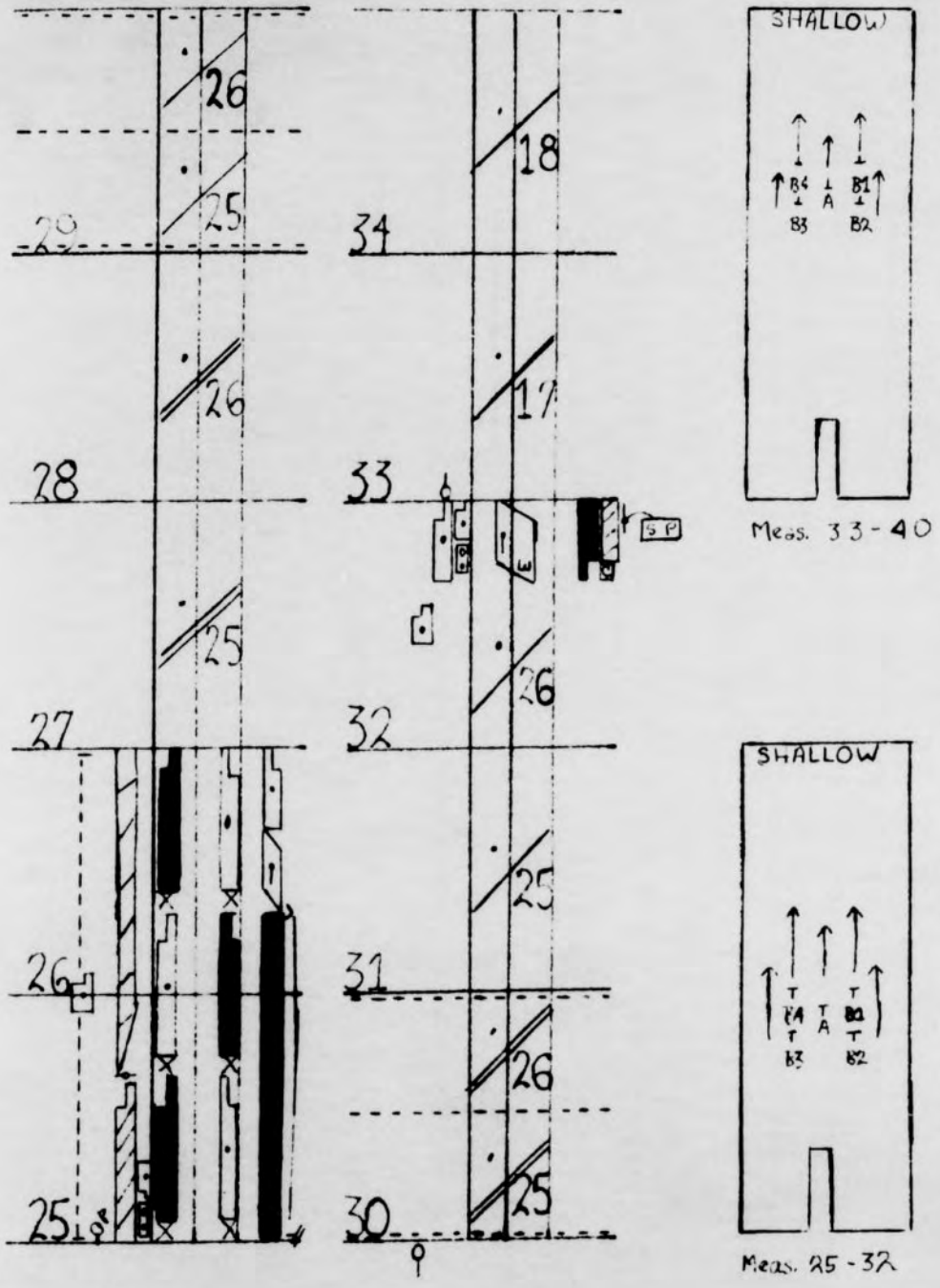
A
A
B1B2
A
B1B2
B3B4


Key Signature for Strokes and Stunts
SHALLOW
B4
B3
A
B1
B2
Meas. 17-24
SHALLOW
B4
B3
B1
B2
A
Meas. 15-16
A B1B2B3B4
A B1B2B3B4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30
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17
33
SP
26
32
25
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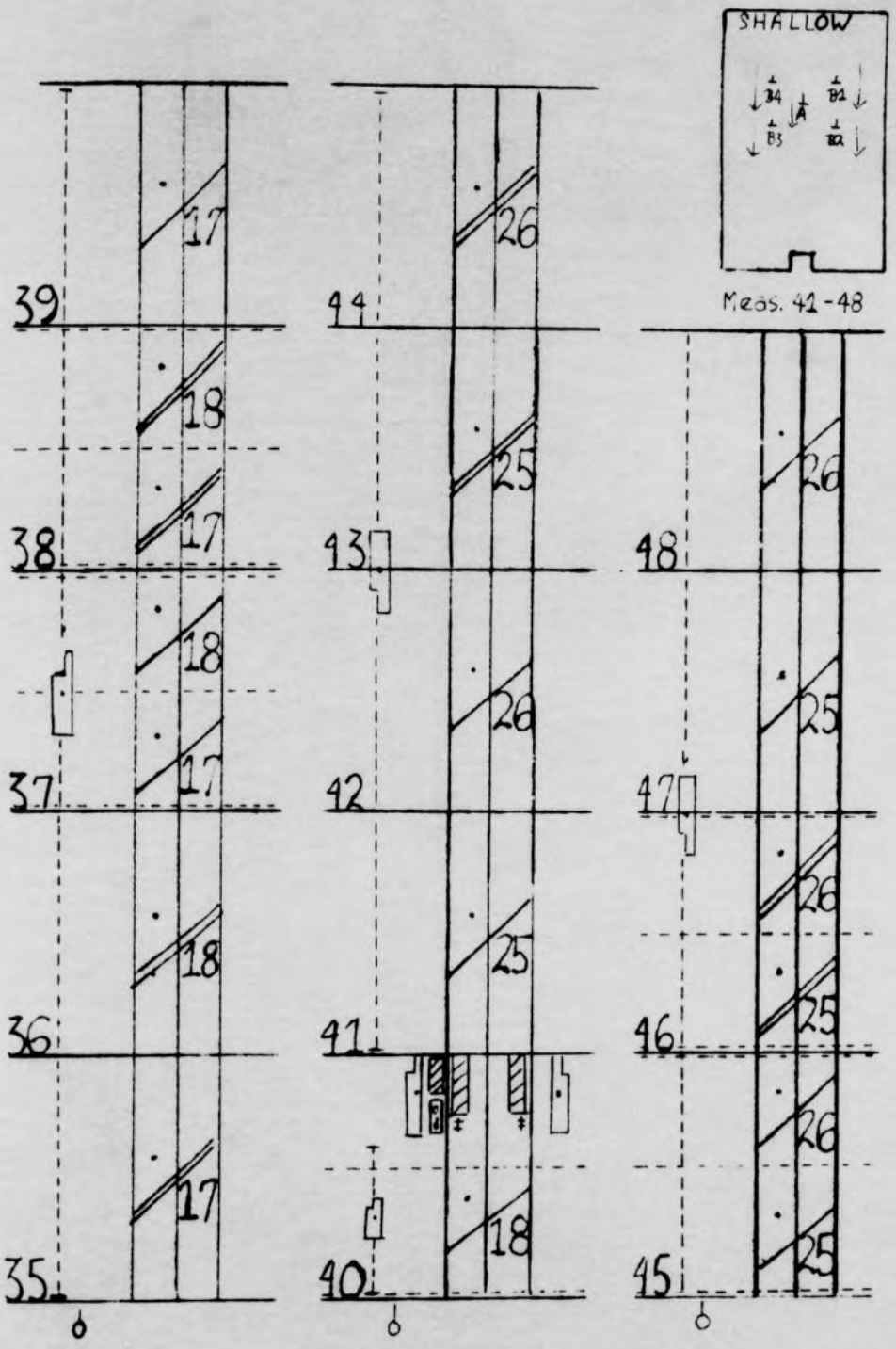
26
25
30
SHALLOW
A
B1
B2
B3
B4
Meas. 33 - 40
SHALLOW
A
B1
B2
B3
B4
Meas. 25 - 32
AB1B2B3B4
AB1B2B3B4


SHALLOW
B4
B2
A
B3
B1
Meas. 41-48
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17
44
43
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25
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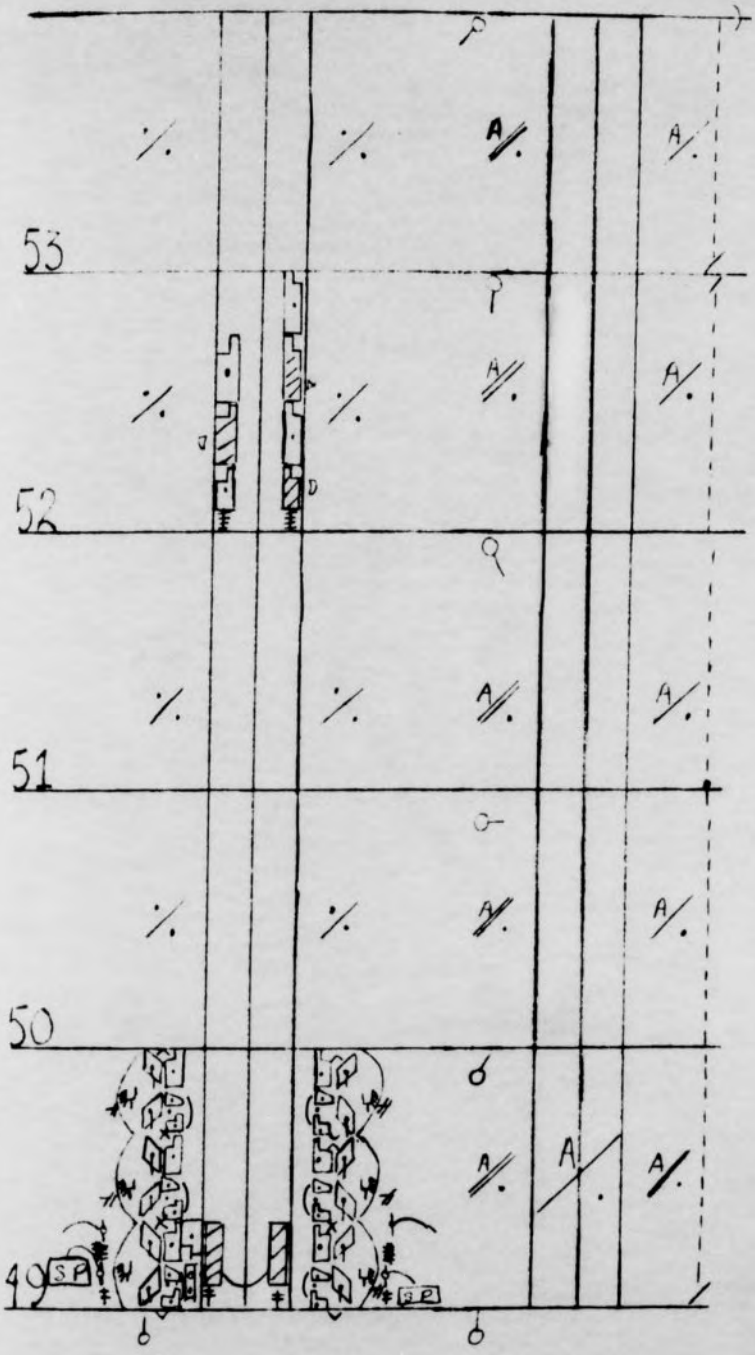
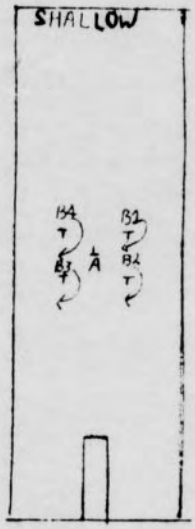
A B1 B2 B3 B4
A B1 B2 B3 B4





Mets. 49 - 52

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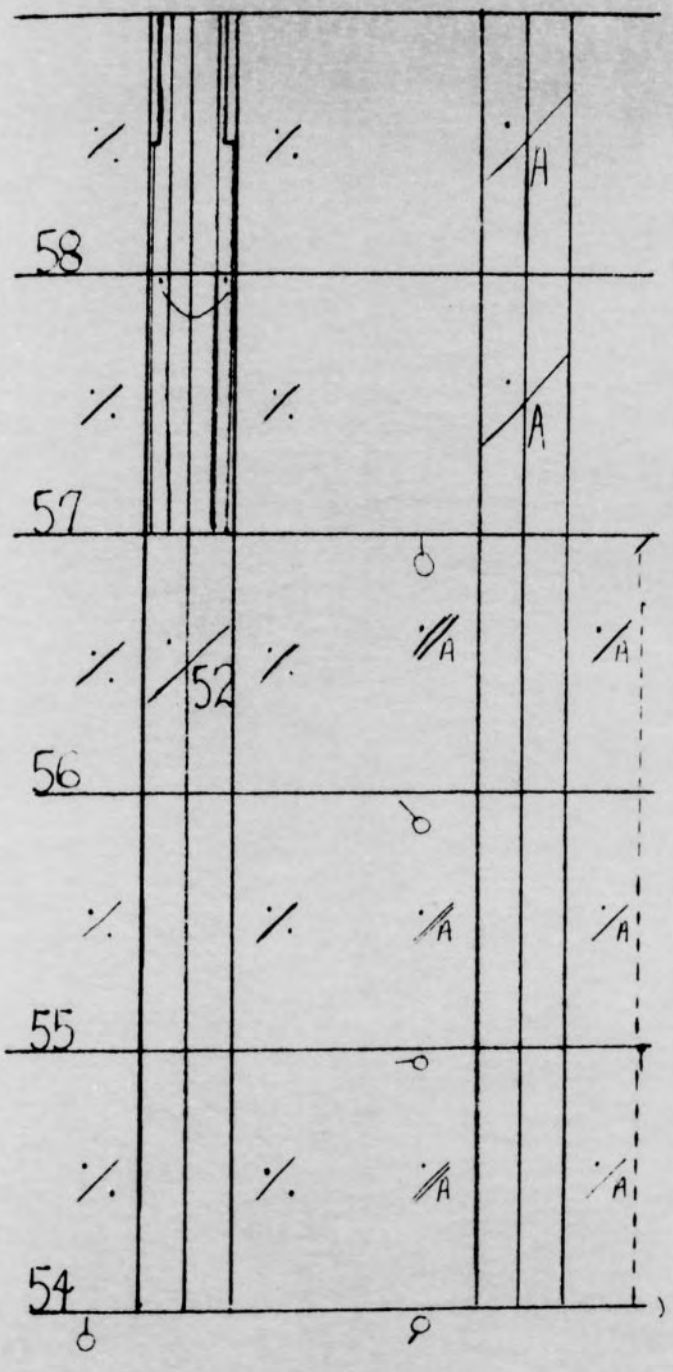

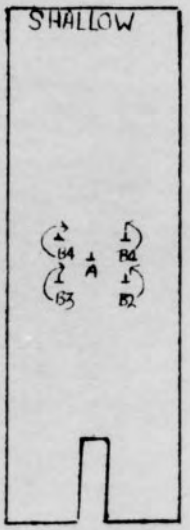

Meas. 53-68

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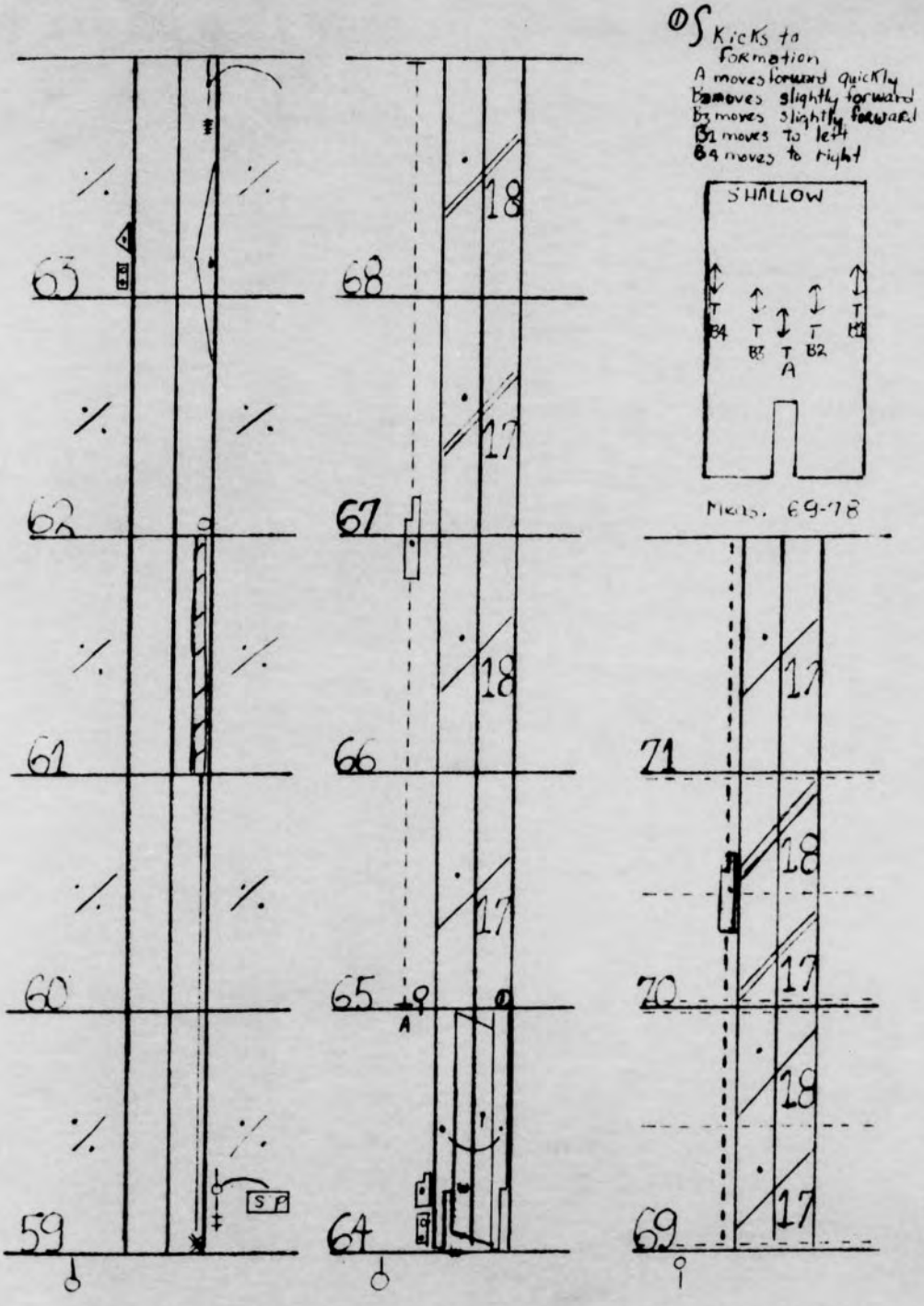

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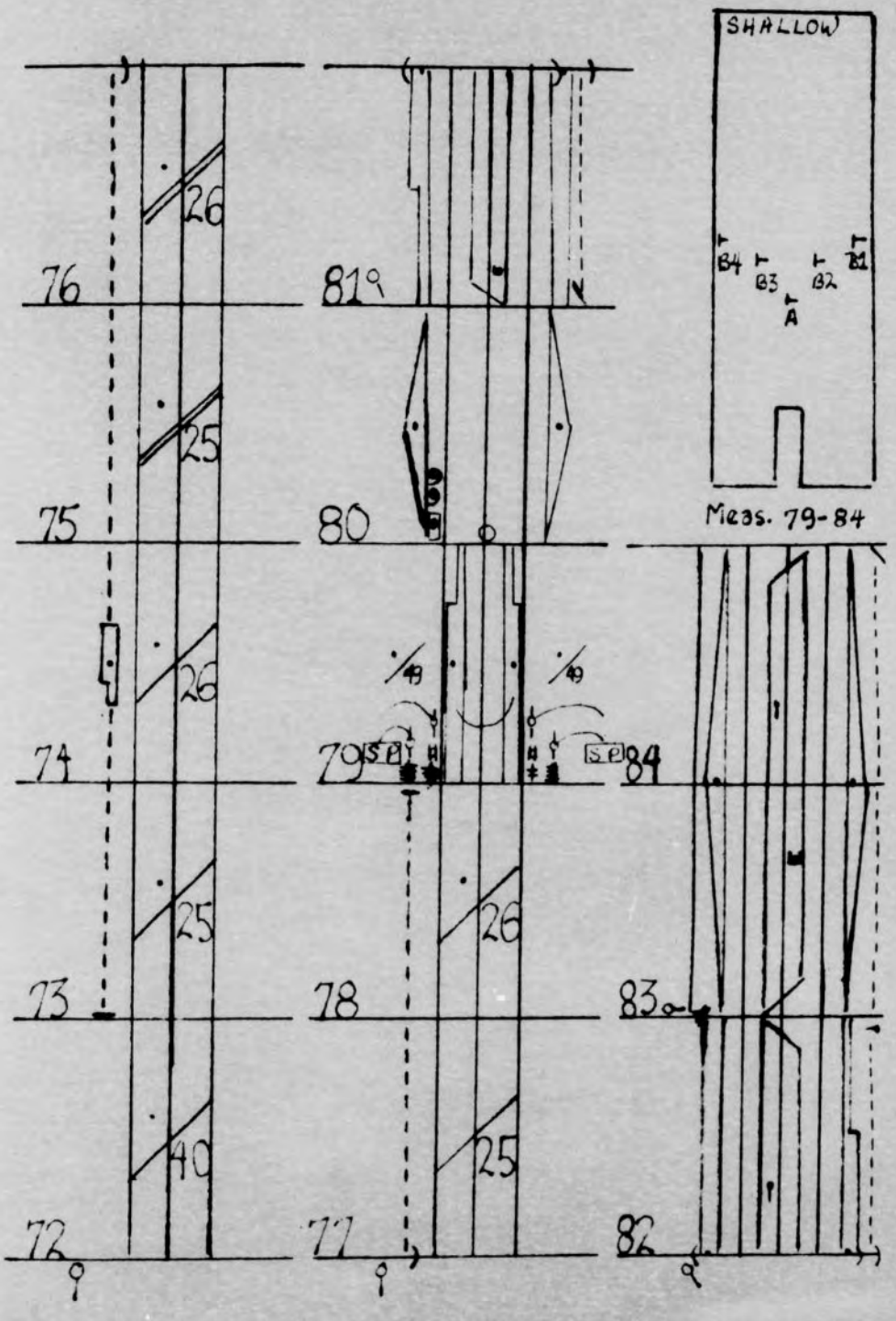
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Meas. 79-84
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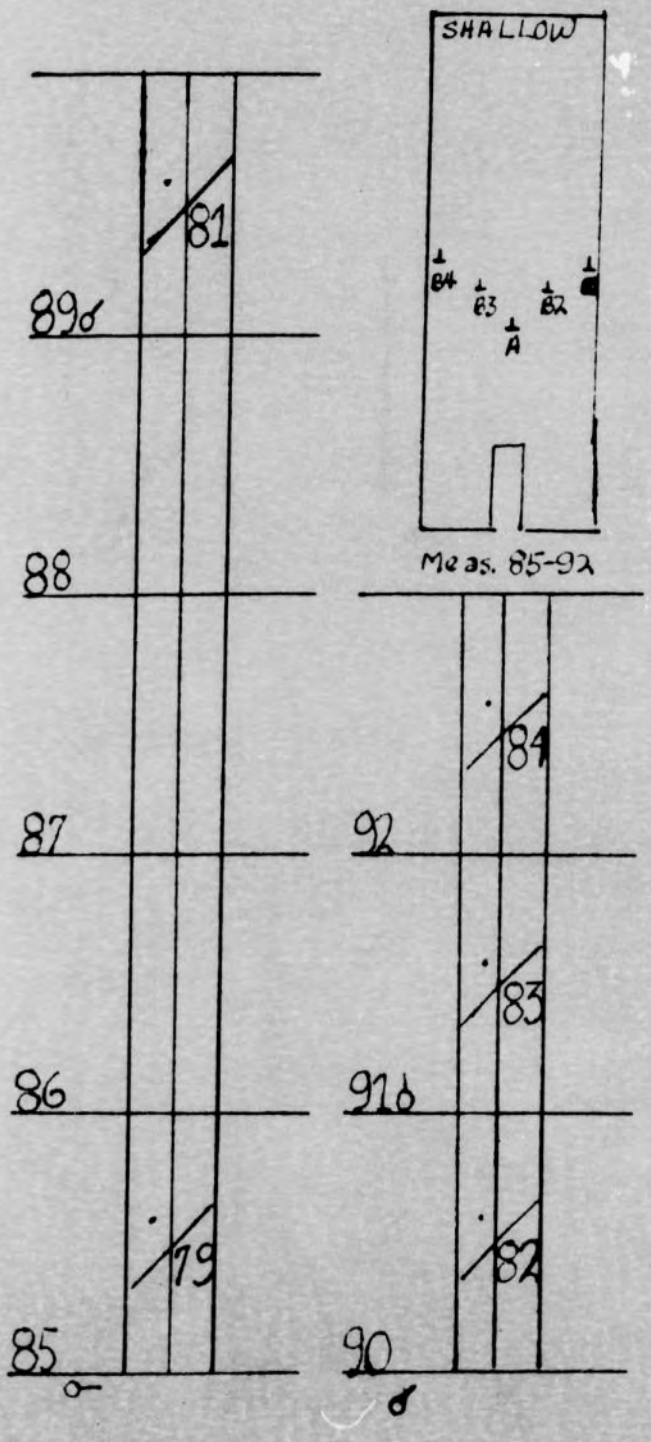
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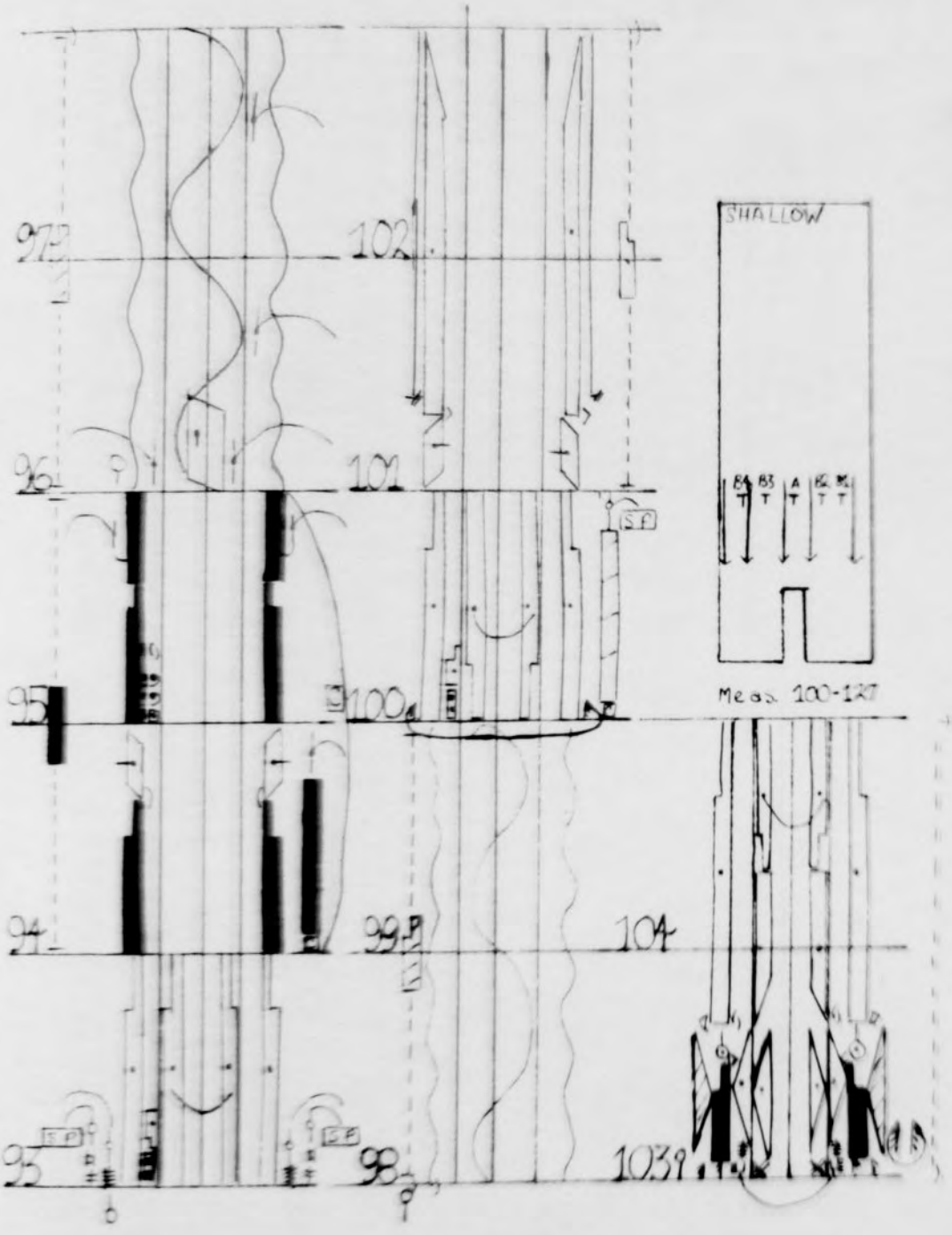
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A B1 B2 B3 B4
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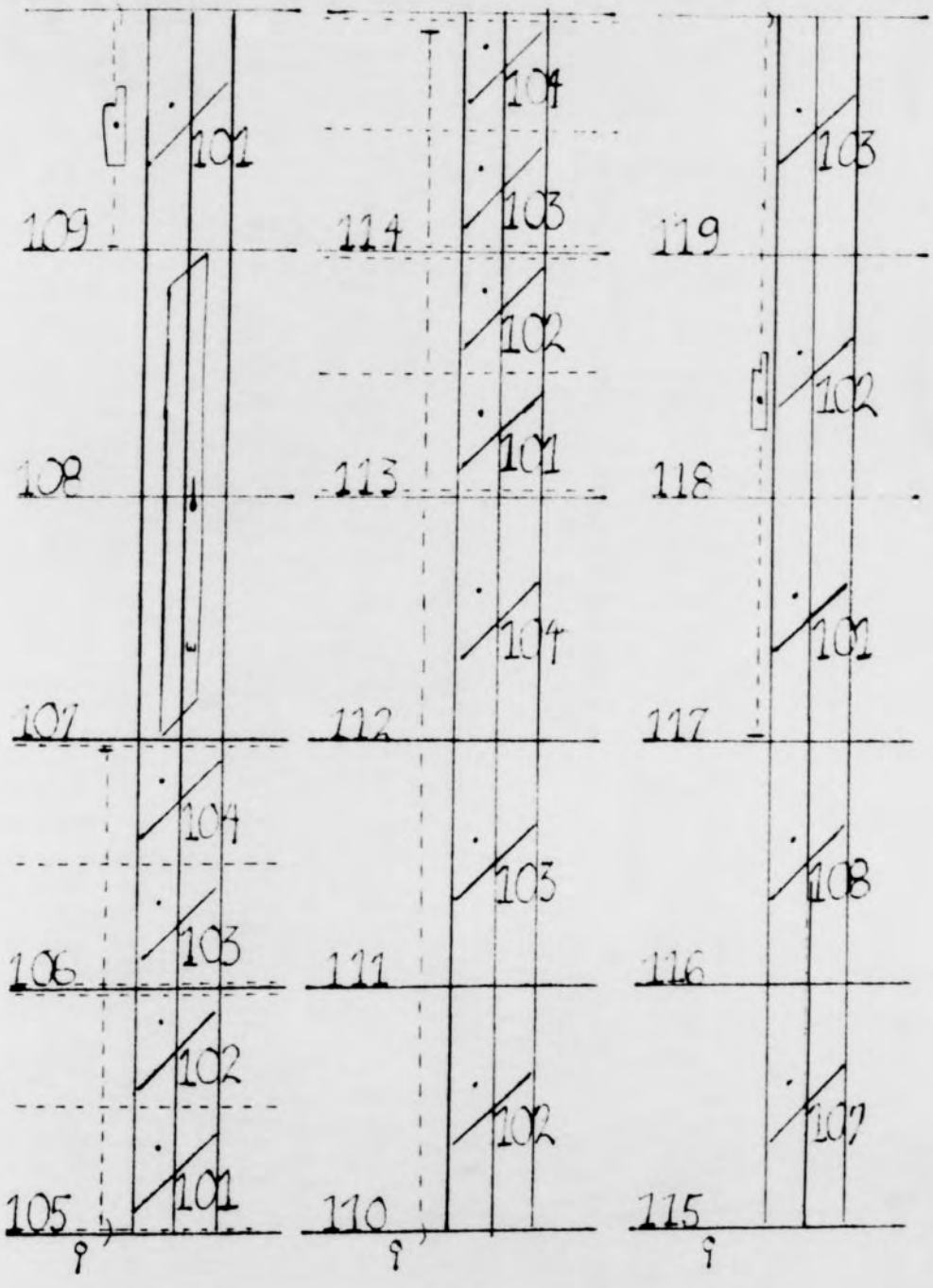
A B1 B2 B3 B4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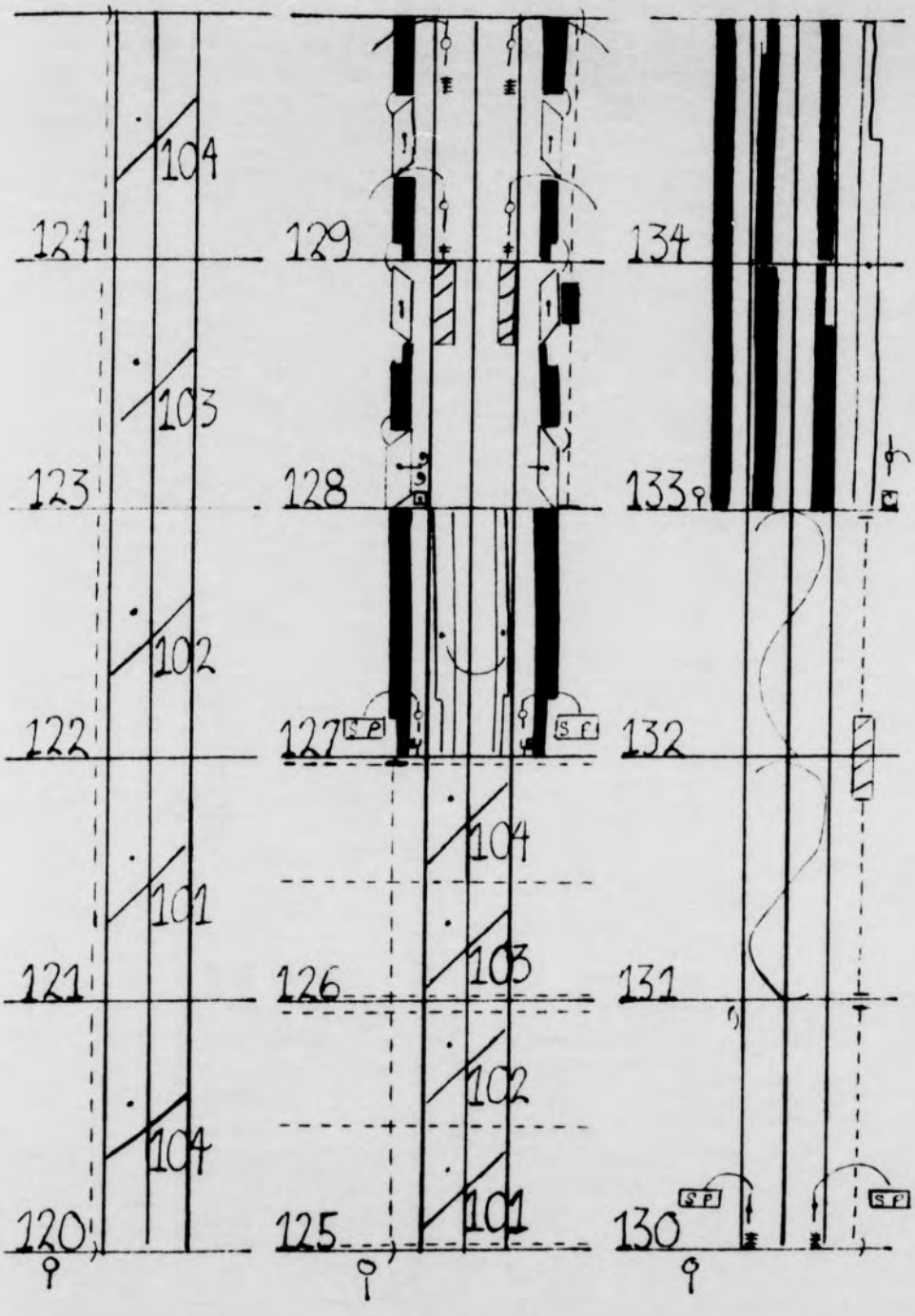
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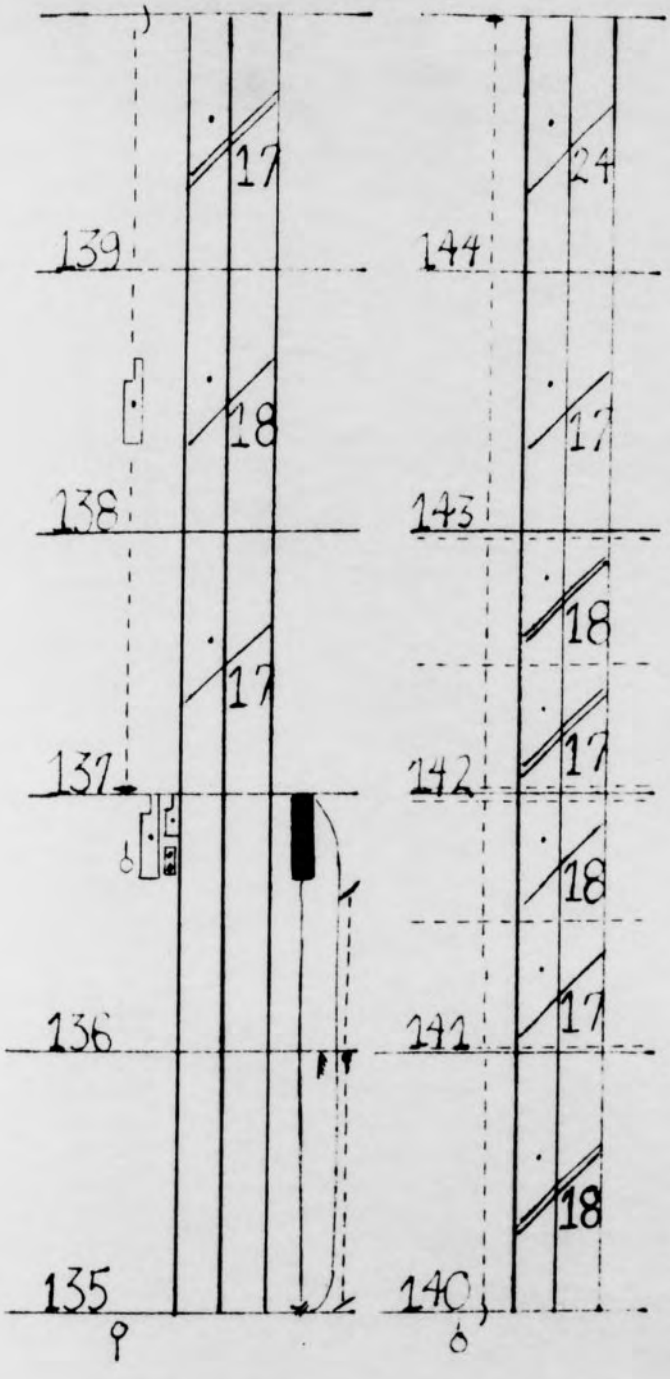
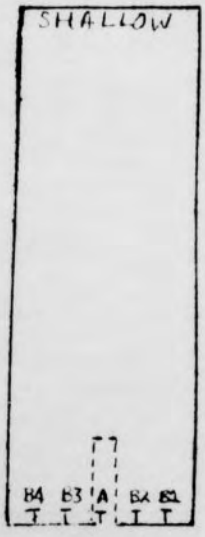
A B1 B2 B3 B4
A B1 B2 B3 B4

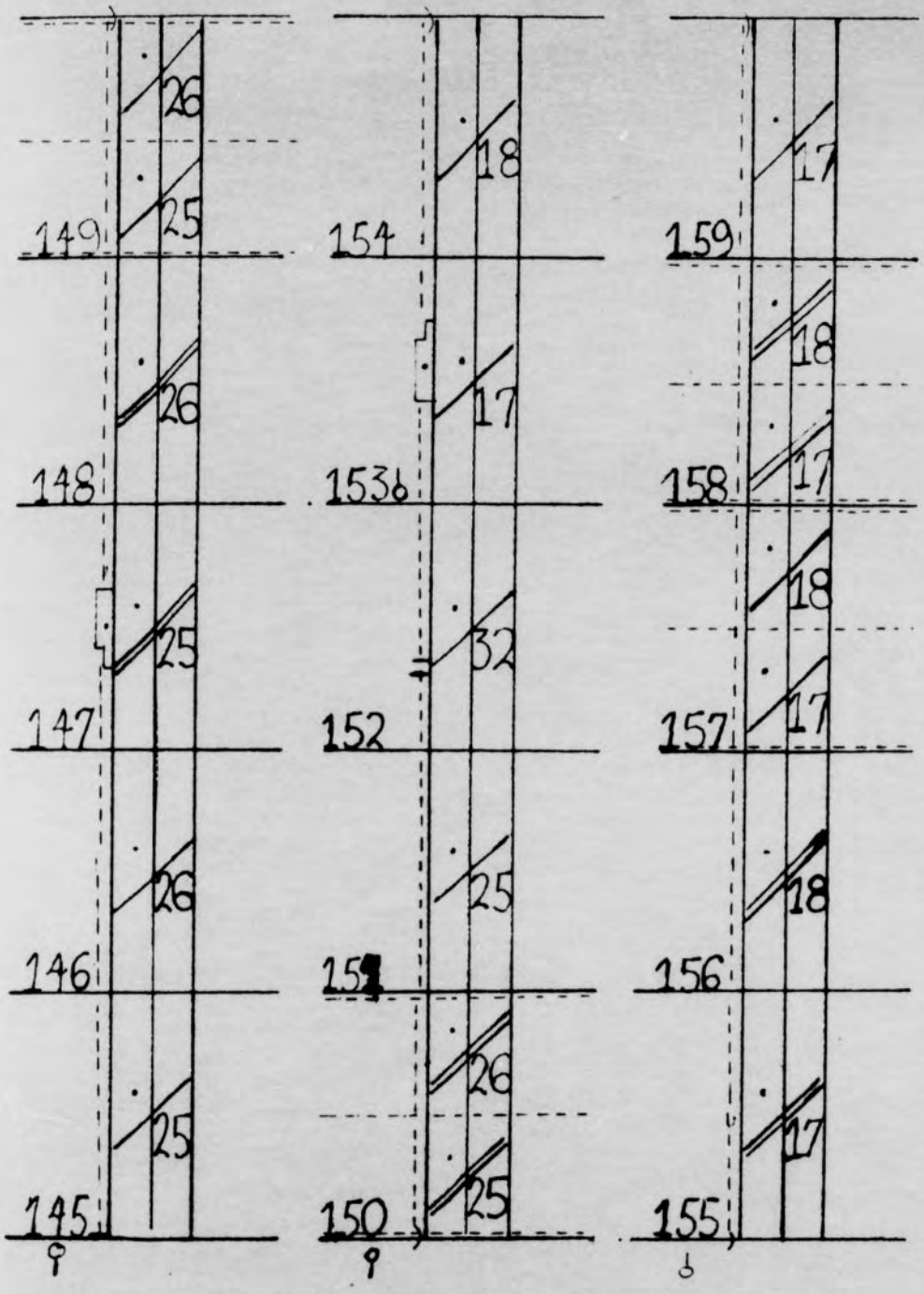


A B1 B2 B3 B4 A B1 B2 B3 B4

Meas. 135-168



Meas. 133-134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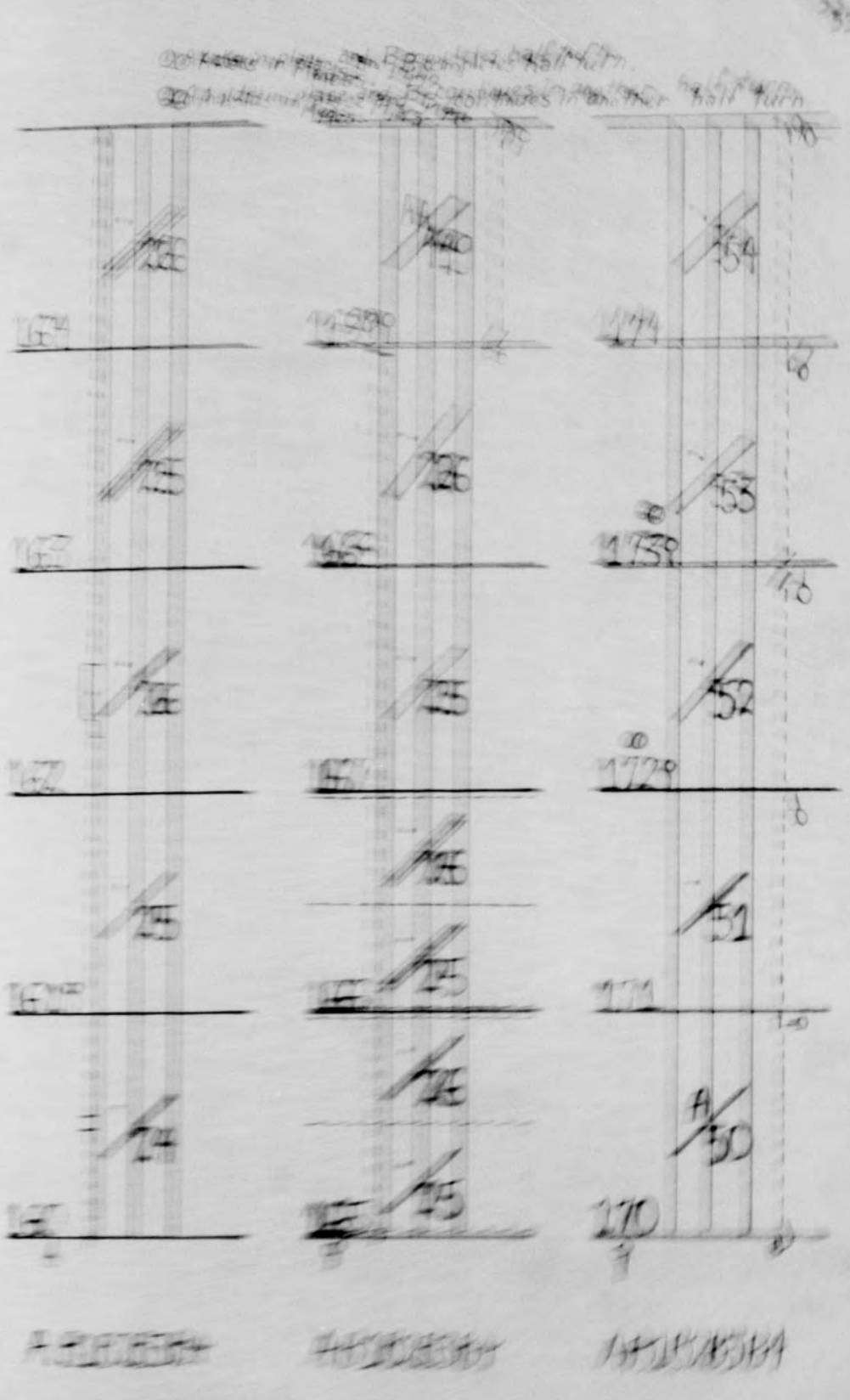

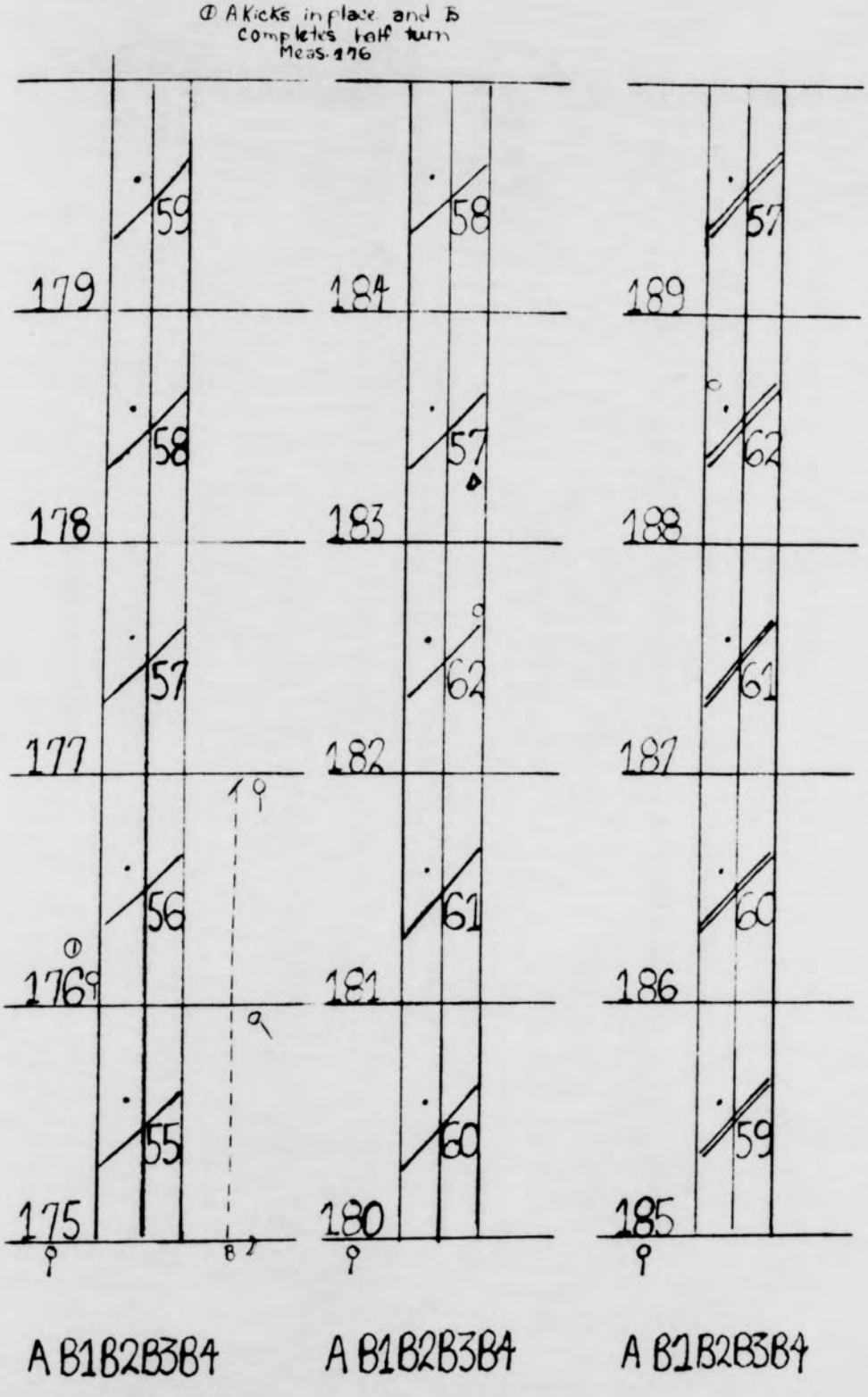
① A kicks in place and B completes half turn Meas. 176
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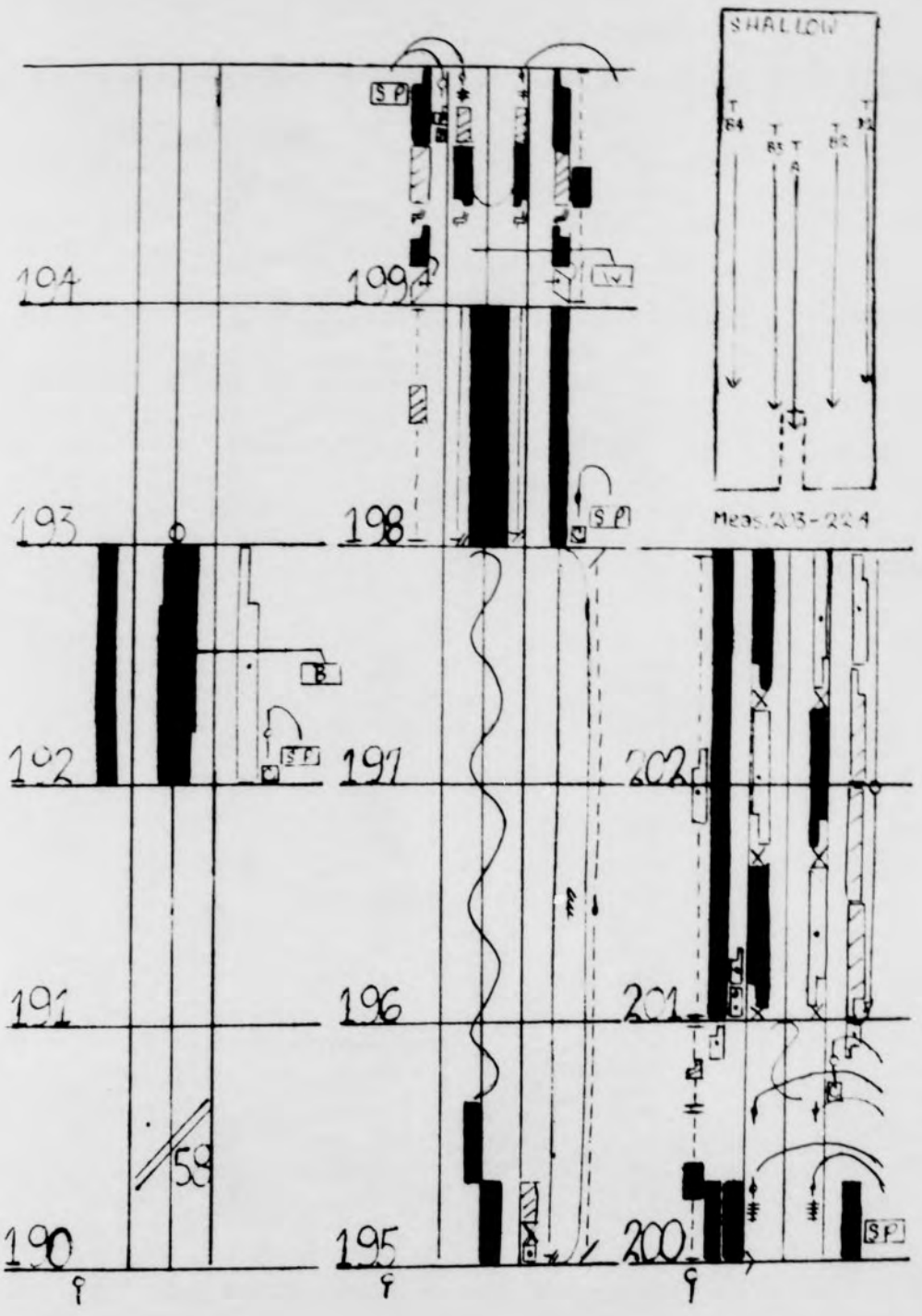
SHALLOW
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Meas 193-224
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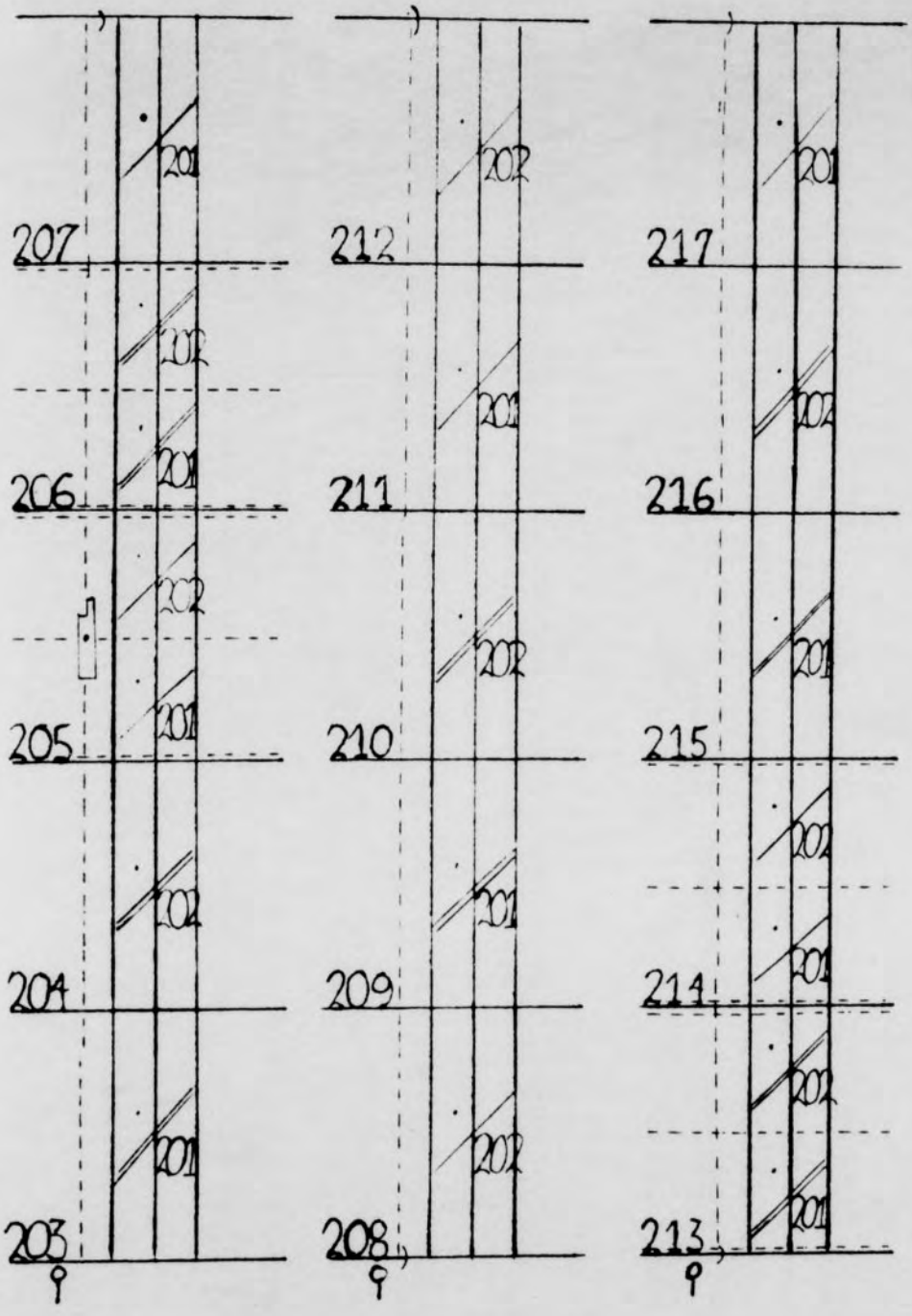
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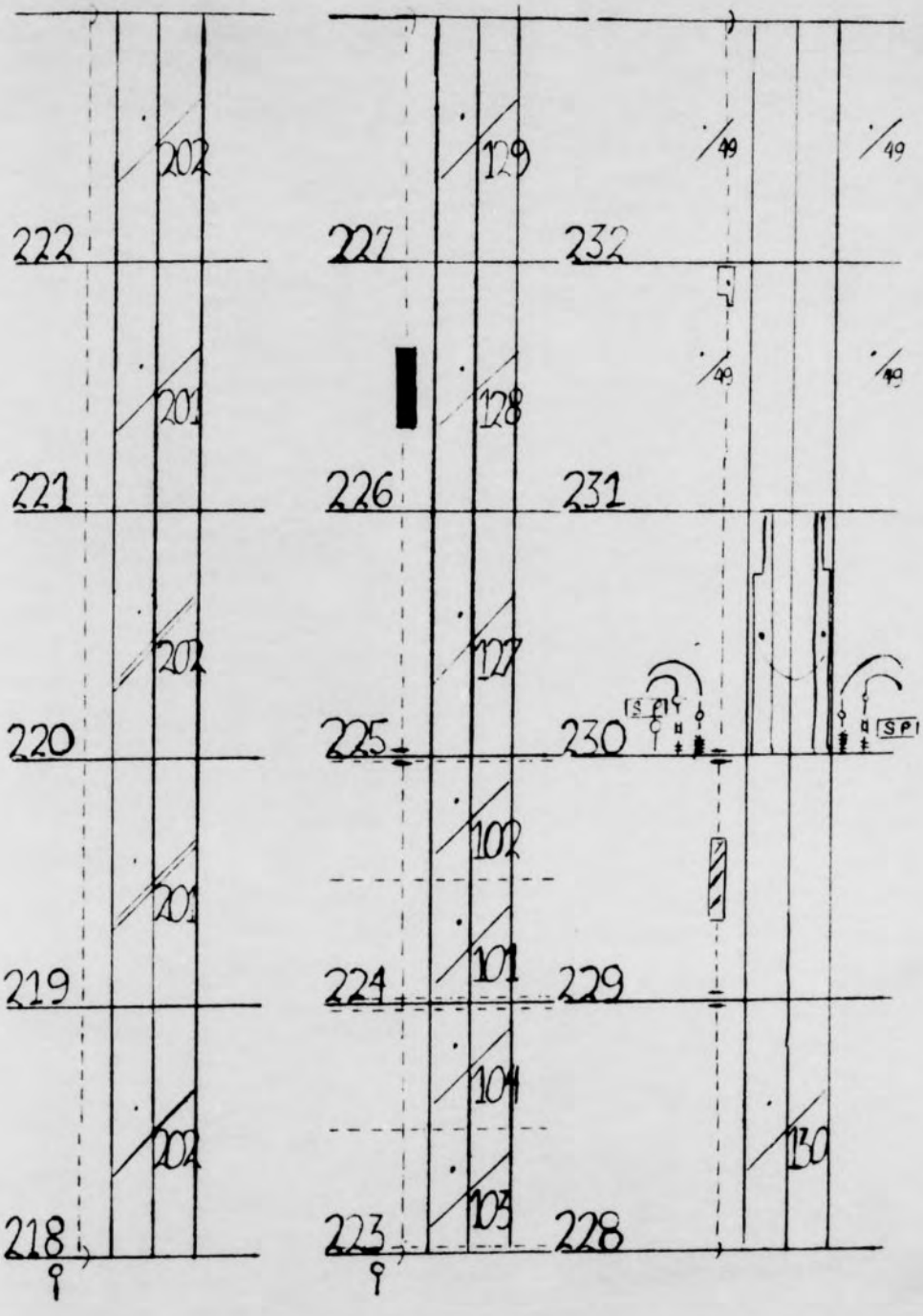
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A B1 B2 B3 B4
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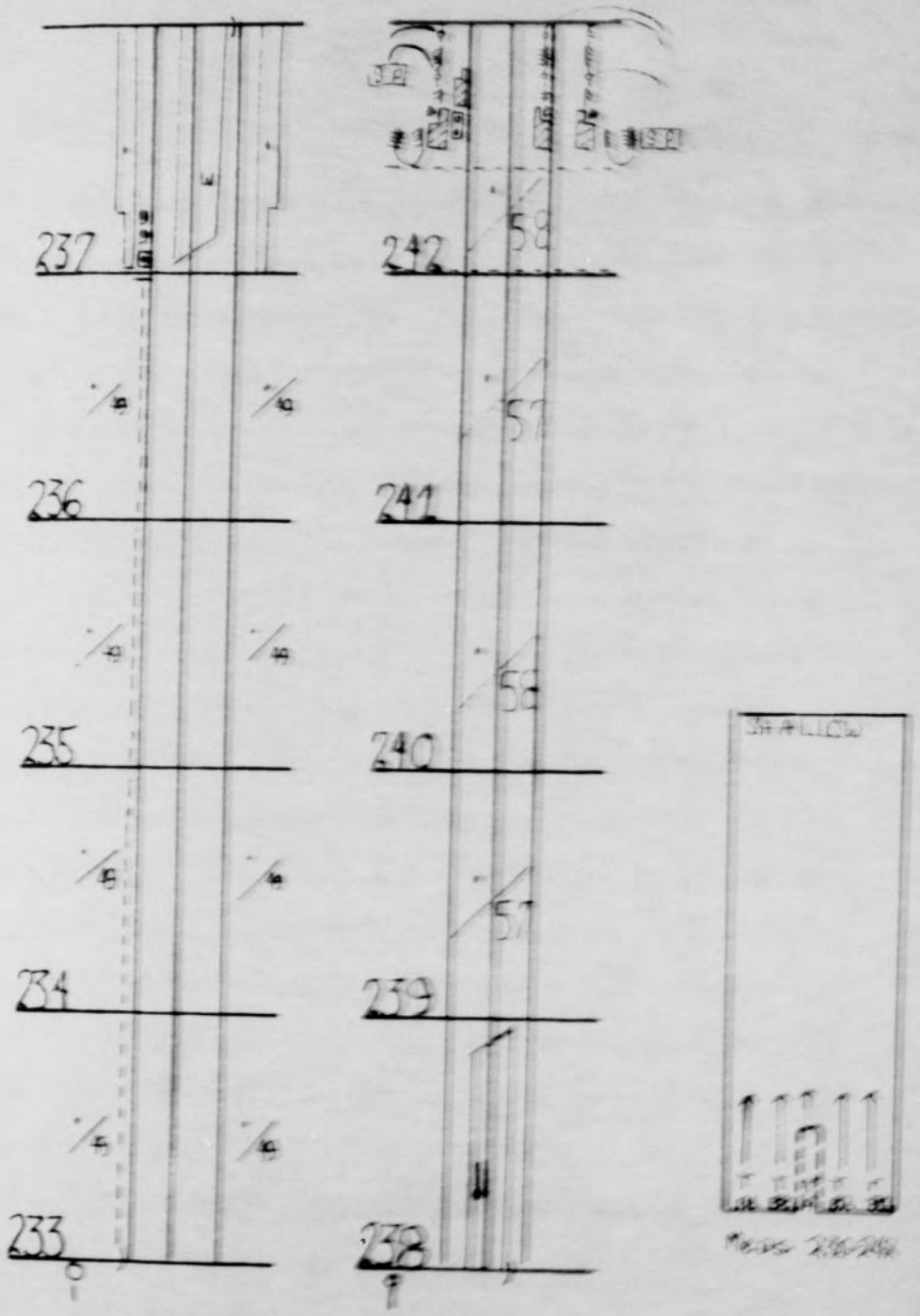
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SHALLOW
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CHAPTER V

CONCLUSION

In this study Labanotation was selected as a method to record synchronized swimming movements because it appeared to be the most universal of all notation systems. It is accepted by the United States Government as the official recording system to copyright dances.

Labanotation can fulfill the necessary requirements for a notation system in synchronized swimming. Level, direction, special patterns, and quality of movement can be recorded as well as the creative element of movement and the tempo of the accompaniment.

Sufficient skill in the use of Labanotation can be gained in two semesters to permit notating the basic skills in synchronized swimming and to record a natatography at the intermediate level. A complete knowledge of Labanotation would take additional years of concentrated study and frequent application. Because of intricate symbols which enable the recording of the smallest movement, Labanotation is often time-consuming. However, if this system were utilized by a synchronized swimming club, many initial rehearsals could be eliminated if all the swimmers could read a notated score before the first practice.

The writer suggests that Labanotation be adopted by synchronized swimming leaders as a method of recording.

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APPENDIX

DePAUW UNIVERSITY

Greencastle, Indiana

Department of Physical Education

October 23, 1962

Miss Mary A. Hoyle
Box 2008
Woman's College
Greensboro, North Carolina

Dear Miss Hoyle:

I know of no system of notation in synchronized swimming. However, I presume that many of us who work with these groups have some way in which we write out compositions. The system which I use is in the DGWS Aquatics Guide, 1961-1963, pp. 62-64. This is in no sense of the word all-inclusive, but I have found it quite satisfactory. I also use pool diagrams along with it.

The only notation system of which I know is the Laban one in dance.

I shall be interested to know how you come out with your idea.

Very sincerely,

Mary Louise Miller, Chrm.
Department of Physical Education
for Women

DIVISION FOR GIRLS AND WOMEN'S SPORTS

American Association
for Health, Physical Education, and Recreation

A Department of The National Education Association
1201 Sixteenth Street, N. W., Washington 6, D. C.

900 Dryden Rd.,
Ithaca, N. Y.
Oct. 29, 1962

Miss Mary A. Hoyle
P.O. Box 2008
Women's College
Greensboro, N.C.

Dear Miss Hoyle:

The one and only research on a system of notating movement for synchronized swimming routines was done by Suzy Clover in 1961 as a Senior Project at Skidmore College, Saratoga Springs, New York. Her advisor was Miss Muriel Swain, who is still employed there, if you would like to contact her for additional information.

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Sincerely yours,

Carole Hass, Chrm.,
DGWS Aquatic Guide Committee

November 7, 1962

Dear Mary,

You certainly are doing your research in a direction in which there is much need. There has been very little written in the way of notation for synchronized swimming.

I would like to have been able to send you a copy of my system, however, my instructor from school has just given me the necessary push so that I am in the midst of getting a copyright for it. I have worked quite a bit since school and am expecting my finished system to be published in the next DGWS Aquatic Guide . . . . Maybe it will be better for you in the long run that I cannot send a copy since that would probably tend only to shape your thinking. It might be best for you to start from scratch to see what you can develop.

I spent quite a bit of time toying with several modern dance notations including Labanotation but discarded the idea ----------Labanotation especially because of the degree of study required in order to thoroughly understand it, but simplicity was one of my goals. I hope you don't give this idea up due to my comments. I merely want to mention that this was what I found.

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.

.

Sincerely,

(Mrs. D. B. Schmitt
548-25 1350 Bluff Rd.
Anchorage, Alaska)

THE INTERNATIONAL ACADEMY OF AQUATIC ART

Office of The President
403 Iowa Theatre Bldg.
Cedar Rapids, Iowa

1-16-63

Dear Miss Hoyle:

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To my knowledge, there is no information on notation systems in synchronized swimming in back issues of THE ARTIST. Very little has been done on this subject.

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Sincerely,

(Beulah Gundling)

SKIDMORE COLLEGE

Department of Physical Education Saratoga Springs, New York

February 8, 1963

Miss Mary A. Hoyle
P.O. Box 2008
Woman's College, UNC
Greensboro, North Carolina

Dear Miss Hoyle:

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.

I am very interested in your results and certainly would appreciate receiving any information that you could send out concerning your notation system. There is a great need for a notation system in synchronized swimming and although Suzie has done an adequate job, maybe you will be more successful. As I told Suzie, if you come up with something I hope that it will not end there and be put away and forgotten but to carry through, get it in print and let other people use it and see what they think about it.

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Sincerely,

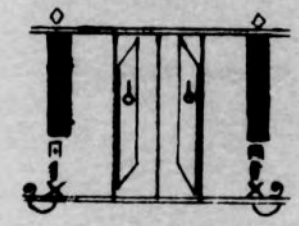
F. Muriel Swain
Assistant Professor

LABANOTATION

of

SYNCHRONIZED SWIMMING SKILLS

1. KEY SIGNATURE

⊙ = 

In synchronized swimming, the normal position differs from the normal position in dance. For this reason a key signature must be indicated. The feet change from the normal first position in dance to one in which the feet are parallel. The hands change from a normal anatomical position in dance to one in which the palms are down. The hand is more relaxed in synchronized swimming. All of these points are indicated on the Labanotated score as the swimmer enters the water.

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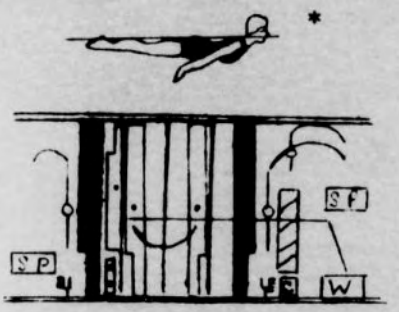

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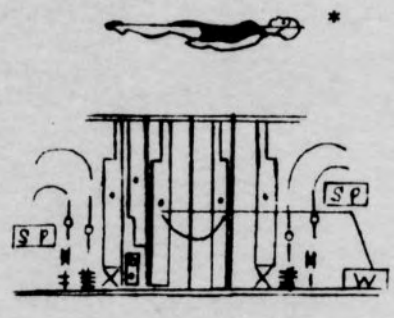

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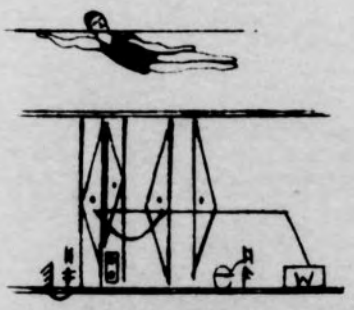
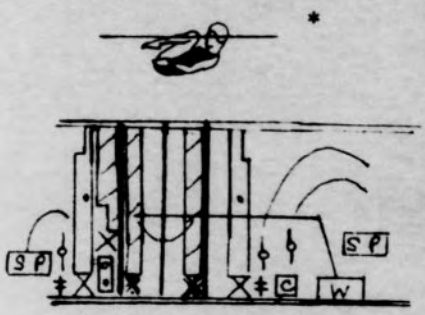


c) Side Layout
on the Right Side

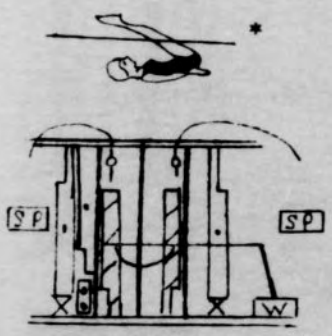
* Permission to use illustrations granted by the Amateur Athletic Union.

3. EXECUTION POSITIONS FOR STUNTS



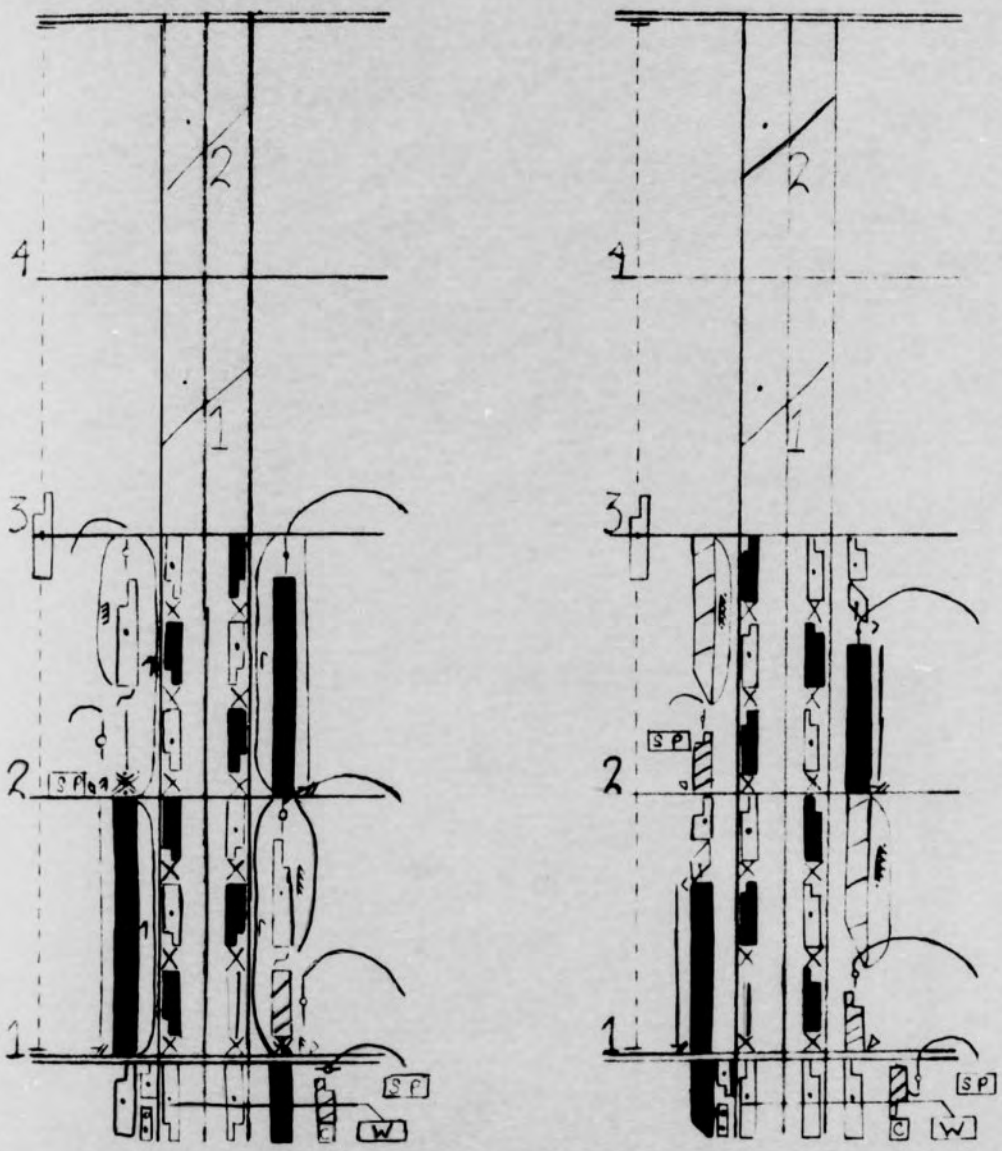
a) Forward or Backward Tuck

b) Forward Pike



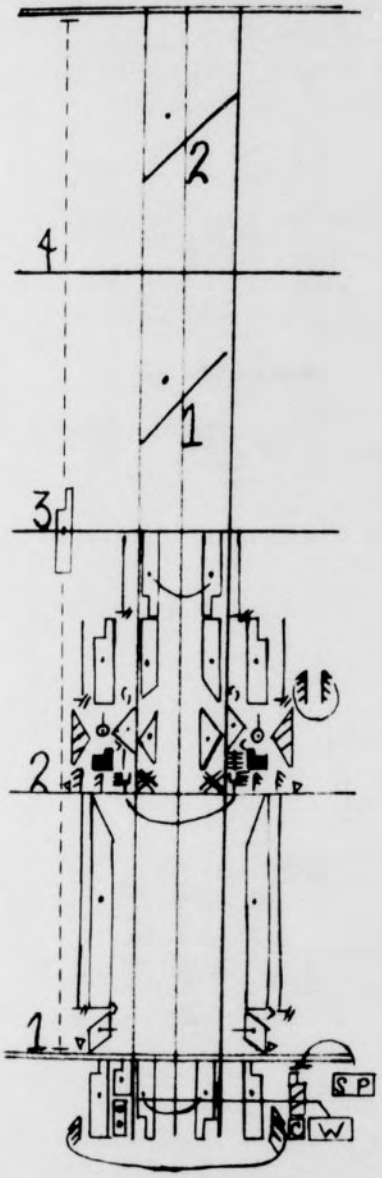
c) Backward Pike

4. BASIC STROKES

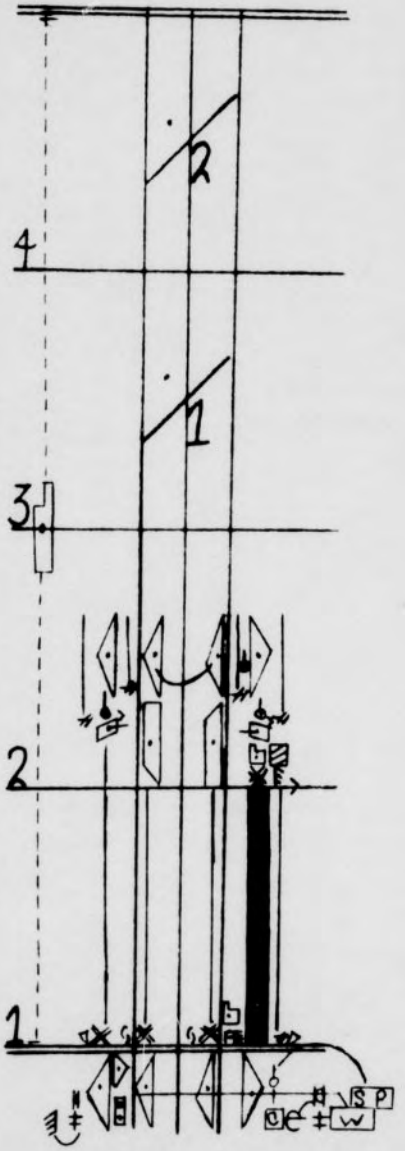


a) Front Crawl

b) Back Crawl

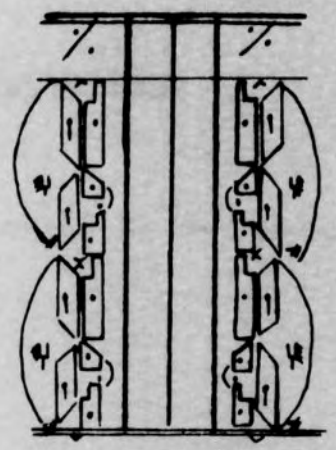


c) Breast Stroke



d) Side Stroke
on the Right Side

5. SCULLING



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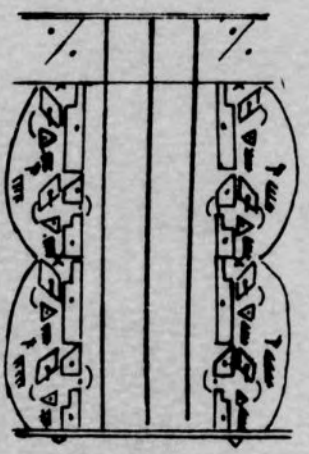
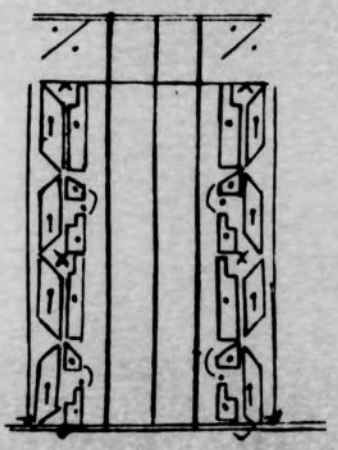


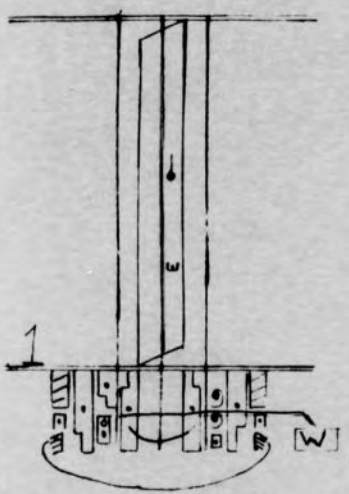
b) Reverse



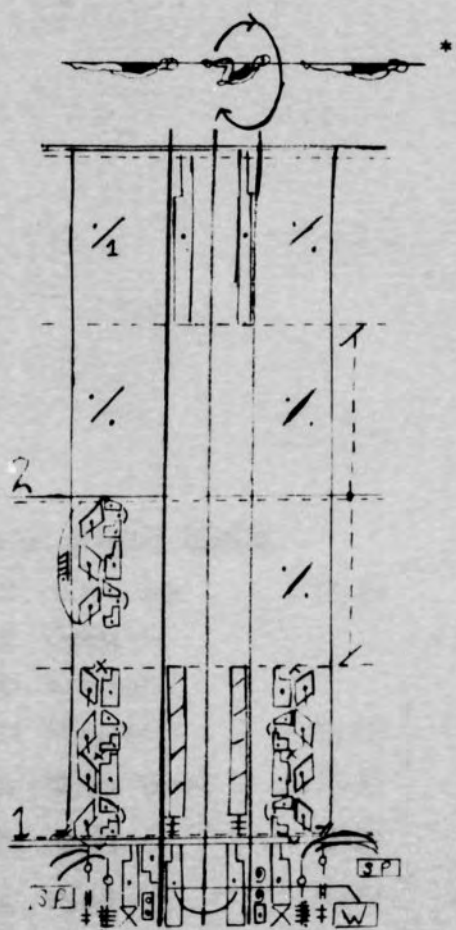
c) Flat

6. BASIC STUNTS +

a) Surface Group

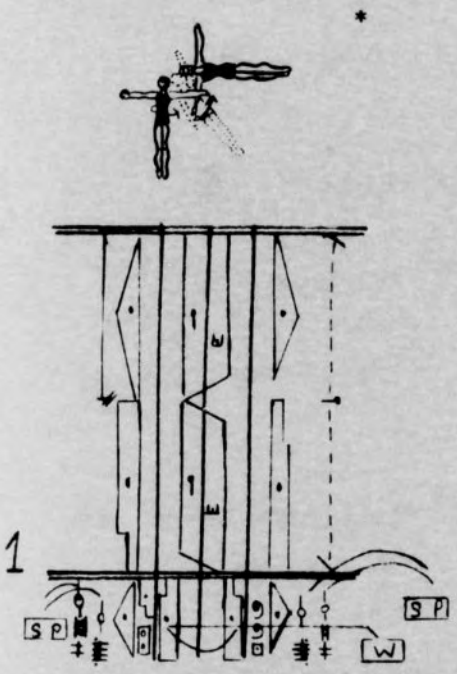


(1) Log Roll (1.1) +



(2) Tub (1.1) +

+ Degree of Difficulty, e.g. (1.4), as established by the Amateur Athletic Union.



(3) Marlin (1.2) +

Other Surface Stunts

(4) Corkscrew (1.2) +

(5) Canoe

(6) Lobster

(7) Torpedo (1.3) +

(8) Water Wheel (1.3) +

(9) Shark (1.3) +

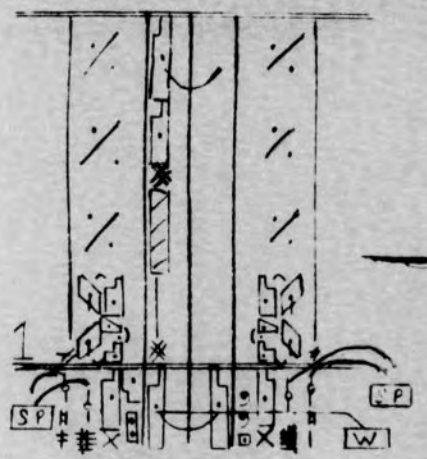
(10) Plank (1.4) +

(11) Pendulum (1.7) +

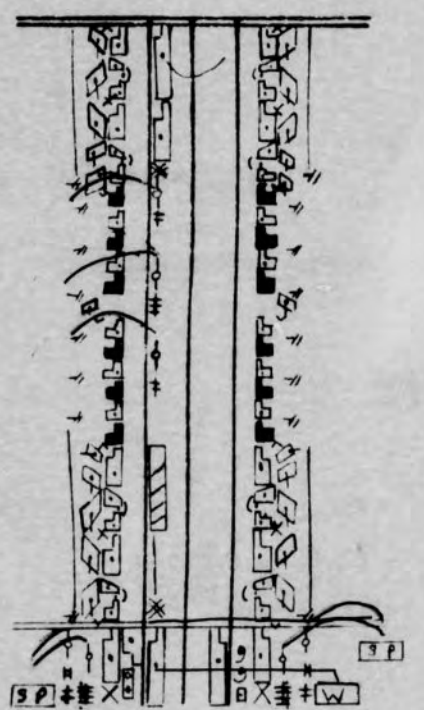
(12) Variations

(13) Combinations

b) Ballet Leg Group



(1) Ballet Leg (1.5) +

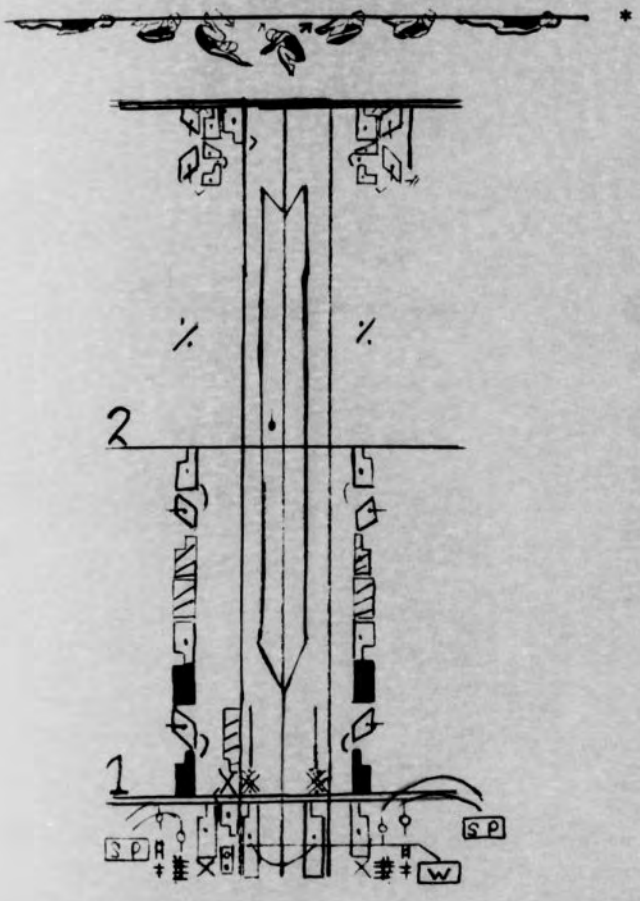


(2) Submarine (1.5) +

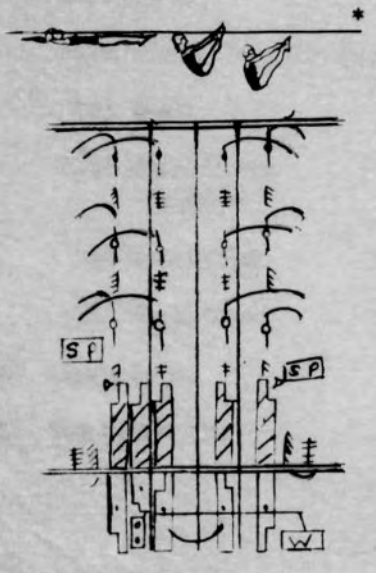
Other Ballet Leg Stunts

(3) Eiffel Tower (1.6) +
(4) Knight (1.7) +
(5) Catalina (1.8) +
(6) Barracuda (1.8) +
(7) Pirouette (1.8) +
(8) Flamingo (1.9) +
(9) Crane (2.0) +
(10) Variations
(11) Combinations

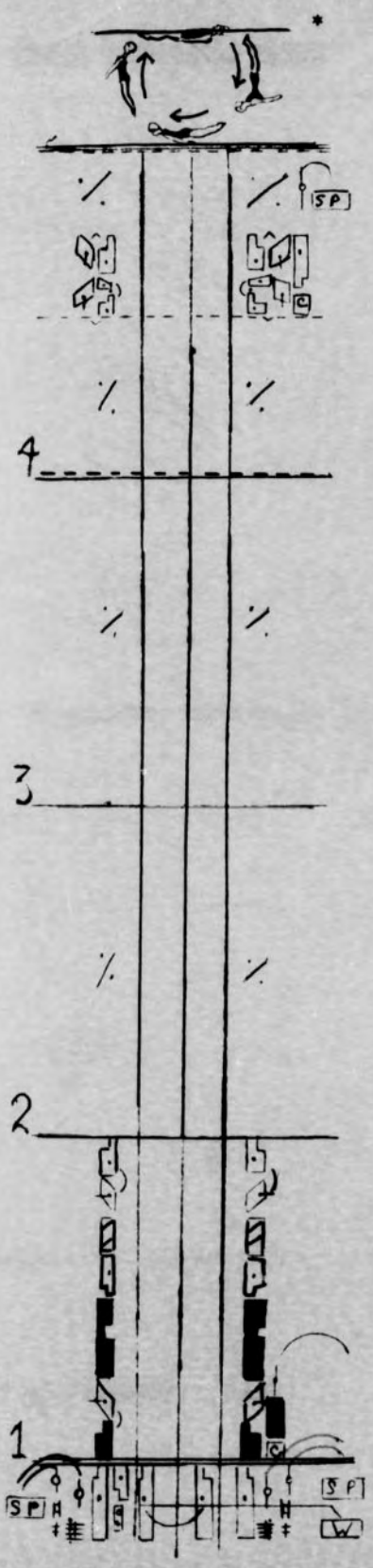
c) Back Somersault Group



(1) Back Tuck Somersault (1.1) +



(2) Oyster (1.2) +



(3) Back Dolphin (1.5) +

Other Back Somersault Stunts

(4) Back Pike Somersault (1.4) +

(5) Back Walkover (1.5) +

(6) Kip (1.7) +

(7) Elevator (2.0) +

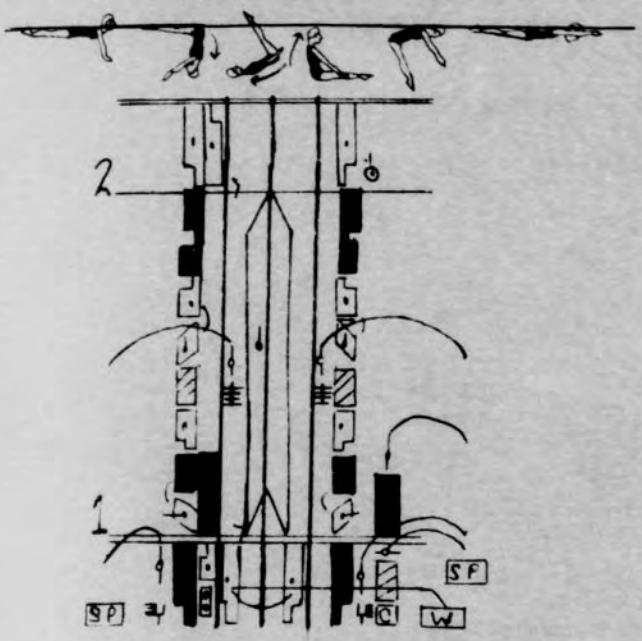
(8) Foot First Dolphin Group

- (a) Seal (1.5) +
- (b) Foot First Dolphin (1.7) +
- (c) Swordfish (1.7) +
- (d) High Tower (2.1) +

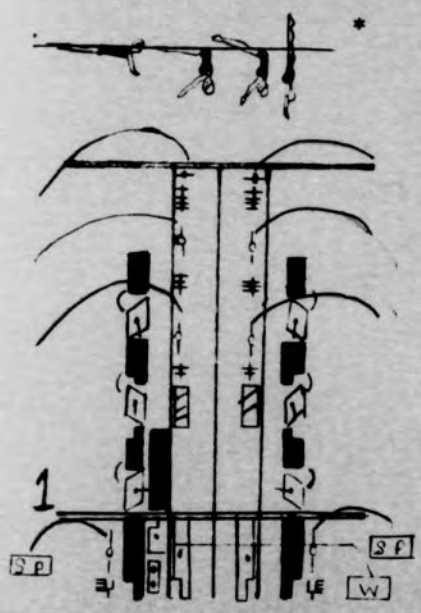
(9) Variations

(10) Combinations

d) Front Somersault Group



(1) Front Pike Somersault (1.4) +



(7 a) Porpoise (1.4) +

Other Front Somersault Stunts

(2) Front Tuck Somersault (1.1) +

(3) Front Walkover (1.4) +

(4) Somersub (1.5) +

(5) Subalina (1.8) +

(6) Subilark (1.9) +

(7) Porpoise Group

- (b) Flying Porpoise (1.3) +
- (c) Periscope (1.5) +
- (d) Heron (1.8) +
- (e) Spiral (1.8) +
- (f) Tailspin (1.9) +
- (g) Gaviata (2.0) +

(8) Variations

(9) Combinations

This Thesis Typed

by

Mrs. Mary Jane V. Knight